

JESTIN4.txt
SEQUENCE LISTING

<110> JESTIN, Andre

ALBINA, Emanuel

Le CANN, Pierre

BLANCHARD, Phillipe

HUTET, Evelyne

ARNAULD, Claire

TRUONG, Catherine

MAHE, Dominique

CARIOLET, Roland

MADEC, Francois

<120> CIRCOVIRUS SEQUENCES ASSOCIATED WITH PIGLET WEIGHT LOSS
DISEASE (PWD)

<130> 065691/0176

<140> US 09/514,245

<141> 2000-02-28

<150> FR 97/15396

<151> 1997-12-05

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<170> PatentIn version 3.0

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<211> 1759

<212> DNA

<213> Type A PWD circovirus

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gcc aag caa gaa aag cgg ccc gca acc cca taa gag gtg ggt gtt cac	96
Ala Lys Gln Glu Lys Arg Pro Ala Thr Pro Glu Val Gly Val His	
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cct taataa tcc ttc cga gga gga gaa aaa caa aat acg gga gct tcc	144
Pro Ser Phe Arg Gly Gly Glu Lys Gln Asn Thr Gly Ala Ser	
35 40 45	
aat ctc cct ttt tga tta ttt tgt ttg tgg cga gga agg ttt gga aga	192
Asn Leu Pro Phe Leu Phe Cys Leu Trp Arg Gly Arg Phe Gly Arg	
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ggg tag aac tcc tca cct cca ggg gtt tgc gaa ttt tgc taa gaa gca	240
Gly Asn Ser Ser Pro Pro Gly Val Cys Glu Phe Cys Glu Ala	
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gac ttt taa caa ggt gaa gtg gta ttt tgg tgc ccg ctg cca cat cga	288
Asp Phe Gln Gly Glu Val Val Phe Trp Cys Pro Leu Pro His Arg	
75 80 85	
gaa agc gaa agg aac cga cca gca gaa taa aga ata ctg cag taa aga	336
Glu Ser Glu Arg Asn Arg Pro Ala Glu Arg Ile Leu Gln Arg	
90 95 100	
agg cca cat act tat cga gtg tgg agc tcc gcg gaa cca ggg gaa gcg	384
Arg Pro His Thr Tyr Arg Val Trp Ser Ser Ala Glu Pro Gly Glu Ala	
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cag cga cct gtc tac tgc tgt gag tac cct ttt gga gac ggg gtc ttt	432
Gln Arg Pro Val Tyr Cys Cys Glu Tyr Pro Phe Gly Asp Gly Val Phe	
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Gly Asp Cys Ser Arg Ala Val Ser Cys Asn Val Cys Glu Lys Phe Pro	
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cgg gct ggc tga act ttt gaa agt gag cgg gaa gat gca gaa gcg tga	528
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Leu Glu Asp Ser Cys Thr Arg His Ser Gly Pro Ala Arg Leu Trp Glu	
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Glu Pro Val Gly Pro Phe Cys Ala Gly His Leu Leu Glu	
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gcc tagtag aaa taa gtg gtg gga tgg ata tca tgg aga aga agt tgt	672
Ala Lys Val Val Gly Trp Ile Ser Trp Arg Arg Ser Cys	
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Thr	Val		Pro	Val	Ser	Ile	Asp	Cys	Arg	Asp		Arg	Gly	Tyr	Cys	
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tcc	ttt	ttt	ggc	ccg	cag	tat	ttt	gat	tac	cag	caa	tca	ggc	ccc	cca	816
Ser	Phe	Phe	Gly	Pro	Gln	Tyr	Phe	Asp	Tyr	Gln	Gln	Ser	Gly	Pro	Pro	
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gga	atg	gta	ctc	ctc	aac	tgc	tgt	ccc	agc	tgt	aga	agc	tct	cta	tcg	864
Gly	Met	Val	Leu	Leu	Asn	Cys	Cys	Pro	Ser	Cys	Arg	Ser	Ser	Leu	Ser	
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Glu	Asp	Tyr	Tyr	Phe	Ala	Ile	Leu	Glu	Asp	Cys	Trp	Arg	Thr	Ile	His	
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gga	ggt	acc	cga	agg	ccg	att	tga	agc	agt	gga	ccc	acc	ctg	tgc	cct	960
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Phe	Pro	Ile		Asn	Lys	Leu	Leu	Ser	Leu	Phe	Cys	Tyr	His	Ile	Val	
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Met	Val	Phe	Ile	Phe	Ile	His	Leu	Glu	Gly	Leu	Ser	Gly		Ile	Leu	
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	Ile	Val	His	Lys		Ser	Thr	Leu	Pro	His	Asn	Phe	Gly	Leu	Trp	
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agt	ggt	agg	taa	agg	gct	gcc	tta	tgg	tgt	ggc	ggg	agg	agt	agt	taa	1296
Ser	Gly	Arg		Arg	Ala	Ala	Leu	Trp	Cys	Gly	Gly	Arg	Ser	Ser		
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Tyr	Arg	Gly	His	Arg	Pro	Ser	Trp	Trp	Arg	Gly	Leu	Gln	Ser	Trp	His	
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cca	aga	taa	caa	cag	tgg	acc	caa	cac	ctc	ttt	gat	tag	agg	tga	tgg	1392
Pro	Arg		Gln	Gln	Trp	Thr	Gln	His	Leu	Phe	Asp		Arg		Trp	
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ggt	ctc	tgg	ggt	aaa	att	cat	att	tag	cct	ttc	taa	tac	ggt	agt	att	1440
Gly	Leu	Trp	Gly	Lys	Ile	His	Ile		Pro	Phe		Tyr	Gly	Ser	Ile	

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gtc ctc ctc tta tgg tga gta caa att ctc tag aaa ggc ggg aat tga Val Leu Leu Leu Trp Val Gln Ile Leu Lys Gly Gly Asn			1584
aga tac ccg tct ttc ggc gcc atc tgt aac ggt ttc tga agg cgg ggt Arg Tyr Pro Ser Phe Gly Ala Ile Cys Asn Gly Phe Arg Arg Gly 490 495 500			1632
gta cca aat atg gtc ttc tcc gga gga tgt ttc caa gat ggc tgc ggg Val Pro Asn Met Val Phe Ser Gly Gly Cys Phe Gln Asp Gly Cys Gly 505 510 515 520			1680
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<213> Type A PWD circovirus

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35 40 45

Phe Leu Phe Cys Leu Trp Arg Gly Arg Phe Gly Arg Gly Asn Ser Ser
50 55 60

Pro Pro Gly Val Cys Glu Phe Cys Glu Ala Asp Phe Gln Gly Glu Val
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JESTIN4.txt

Val Phe Trp Cys Pro Leu Pro His Arg Glu Ser Glu Arg Asn Arg Pro
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Ala Glu Arg Ile Leu Gln Arg Arg Pro His Thr Tyr Arg Val Trp Ser
100 105 110

Ser Ala Glu Pro Gly Glu Ala Gln Arg Pro Val Tyr Cys Cys Glu Tyr
115 120 125

Pro Phe Gly Asp Gly Val Phe Gly Asp Cys Ser Arg Ala Val Ser Cys
130 135 140

Asn Val Cys Glu Lys Phe Pro Arg Ala Gly Thr Phe Glu Ser Glu Arg
145 150 155 160

Glu Asp Ala Glu Ala Leu Glu Asp Ser Cys Thr Arg His Ser Gly Pro
165 170 175

Ala Arg Leu Trp Glu Glu Pro Val Gly Pro Phe Cys Ala Gly His Leu
180 185 190

Leu Glu Ala Lys Val Val Gly Trp Ile Ser Trp Arg Arg Ser Cys Cys
195 200 205

Phe Gly Phe Leu Trp Leu Val Thr Leu Gly Ser Thr Glu Thr Val Pro
210 215 220

Val Ser Ile Asp Cys Arg Asp Arg Gly Tyr Cys Ser Phe Phe Gly Pro
225 230 235 240

Gln Tyr Phe Asp Tyr Gln Gln Ser Gly Pro Pro Gly Met Val Leu Leu
245 250 255

Asn Cys Cys Pro Ser Cys Arg Ser Ser Leu Ser Glu Asp Tyr Tyr Phe
260 265 270

Ala Ile Leu Glu Asp Cys Trp Arg Thr Ile His Gly Gly Thr Arg Arg
275 280 285

Pro Ile Ser Ser Gly Pro Thr Leu Cys Pro Phe Pro Ile Asn Lys Leu
290 295 300

Leu Ser Leu Phe Cys Tyr His Ile Val Met Val Phe Ile Phe Ile His
305 310 315 320

Leu Glu Gly Leu Ser Gly Ile Leu Ile Val His Lys Ser Thr Leu Pro
325 330 335

JESTIN4.txt

His Asn Phe Gly Leu Trp Leu His Phe Gly Ala His Ser Pro Gly Leu
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Cys Ala Arg His Trp Cys Gly Tyr Leu Asn Gly Ala Thr Ala Gly Phe
355 360 365

Phe Tyr Tyr Leu Ala Gly Thr Asn Gln Leu Phe Gly Leu Ala Leu Val
370 375 380

Trp Gly Ser Thr Trp Ser Gly Arg Arg Ala Ala Leu Trp Cys Gly Gly
385 390 395 400

Arg Ser Ser Tyr Arg Gly His Arg Pro Ser Trp Trp Arg Gly Leu Gln
405 410 415

Ser Trp His Pro Arg Gln Gln Trp Thr Gln His Leu Phe Asp Arg Trp
420 425 430

Gly Leu Trp Gly Lys Ile His Ile Pro Phe Tyr Gly Ser Ile Gly Lys
435 440 445

Val Gly Val Gly Gly Trp Cys Arg Leu Arg Gly Gly Gly Thr Gly Arg
450 455 460

Cys Ile Ser Ala Arg His Ser Lys Met Ala Ala Ser Val Leu Leu Leu
465 470 475 480

Trp Val Gln Ile Leu Lys Gly Gly Asn Arg Tyr Pro Ser Phe Gly Ala
485 490 495

Ile Cys Asn Gly Phe Arg Arg Gly Val Pro Asn Met Val Phe Ser Gly
500 505 510

Gly Cys Phe Gln Asp Gly Cys Gly Gly Gly Ser Val Phe Cys Gly Asn
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Ala Ser Leu Ala Thr Ser Ser Tyr Lys Ser Glu Arg Ser Ala Leu Leu
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Tyr
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<211> 577

<212> PRT

<213> Type A PWD circovirus

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 35 40 45
 Ile Ser Leu Phe Asp Tyr Phe Val Cys Gly Glu Glu Gly Leu Glu Glu
 50 55 60
 Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe Ala Lys Lys Gln
 65 70 75 80
 Thr Phe Asn Lys Val Lys Trp Tyr Phe Gly Ala Arg Cys His Ile Glu
 85 90 95
 Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Glu Tyr Cys Ser Lys Glu
 100 105 110
 Gly His Ile Leu Ile Glu Cys Gly Ala Pro Arg Asn Gln Gly Lys Arg
 115 120 125
 Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Glu Thr Gly Ser Leu
 130 135 140
 Val Thr Val Ala Glu Gln Phe Pro Val Thr Tyr Val Arg Asn Phe Arg
 145 150 155 160
 Gly Leu Ala Glu Leu Leu Lys Val Ser Gly Lys Met Gln Lys Arg Asp
 165 170 175
 Trp Lys Thr Ala Val His Val Ile Val Gly Pro Pro Gly Cys Gly Lys
 180 185 190
 Ser Gln Trp Ala Arg Asn Phe Ala Glu Pro Arg Asp Thr Tyr Trp Lys
 195 200 205
 Pro Ser Arg Asn Lys Trp Trp Asp Gly Tyr His Gly Glu Glu Val Val
 210 215 220
 Val Leu Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp Asp Leu Leu Arg
 225 230 235 240
 Leu Cys Asp Arg Tyr Pro Leu Thr Val Glu Thr Lys Gly Gly Thr Val
 245 250 255
 Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn Gln Ala Pro Gln
 260 265 270
 Glu Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Glu Ala Leu Tyr Arg
 275 280 285
 Arg Ile Thr Thr Leu Gln Phe Trp Lys Thr Ala Gly Glu Gln Ser Thr
 290 295 300

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Glu Val Pro Glu Gly Arg Phe Glu Ala Val Asp Pro Pro Cys Ala Leu
 305 310 315 320
 Phe Pro Tyr Lys Ile Asn Tyr Val Phe Phe Val Ile Thr Ser Trp Phe
 325 330 335
 Leu Phe Leu Phe Ile Arg Val Phe Gln Asp Lys Phe Ser Glu Leu Tyr
 340 345 350
 Ile Asn Ser Gln Pro Tyr His Ile Ile Leu Gly Cys Gly Cys Ile Leu
 355 360 365
 Glu Arg Ile Ala Gln Ala Cys Val Leu Asp Ile Gly Val Gly Ile Met
 370 375 380
 Glu Pro Gln Leu Val Ser Phe Ile Ile Trp Leu Glu Pro Ile Asn Cys
 385 390 395 400
 Leu Val Leu Trp Phe Gly Gly Glu Val Pro Gly Val Val Gly Lys Gly
 405 410 415
 Leu Pro Tyr Gly Val Ala Gly Gly Val Val Asn Ile Gly Val Ile Gly
 420 425 430
 Gln Val Gly Gly Gly Gly Tyr Lys Val Gly Ile Gln Asp Asn Asn Ser
 435 440 445
 Gly Pro Asn Thr Ser Leu Ile Arg Gly Asp Gly Val Ser Gly Val Lys
 450 455 460
 Phe Ile Phe Ser Leu Ser Asn Thr Val Val Leu Glu Arg Gly Val Gly
 465 470 475 480
 Ala Ala Gly Gly Glu Glu Leu Ala Asp Val Glu Ser Gln Leu Val Asn
 485 490 495
 Ile Pro Arg Trp Leu Arg Val Ser Ser Ser Tyr Gly Glu Tyr Lys Phe
 500 505 510
 Ser Arg Lys Ala Gly Ile Glu Asp Thr Arg Leu Ser Ala Pro Ser Val
 515 520 525
 Thr Val Ser Glu Gly Gly Val Tyr Gln Ile Trp Ser Ser Pro Glu Asp
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 Val Ser Lys Met Ala Ala Gly Ala Gly Pro Ser Ser Ala Val Thr Pro
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 Pro Trp Pro Arg His Pro Ile Lys Val Lys Glu Val Arg Cys Cys Ser
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<212> PRT

<213> Type A PWD circovirus

JESTIN4.txt

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 35 40 45
 Leu Ile Ile Leu Phe Val Ala Arg Lys Val Trp Lys Arg Val Glu Leu
 50 55 60
 Leu Thr Ser Arg Gly Leu Arg Ile Leu Leu Arg Ser Arg Leu Leu Thr
 65 70 75 80
 Arg Ser Gly Ile Leu Val Pro Ala Ala Thr Ser Arg Lys Arg Lys Glu
 85 90 95
 Pro Thr Ser Arg Ile Lys Asn Thr Ala Val Lys Lys Ala Thr Tyr Leu
 100 105 110
 Ser Ser Val Glu Leu Arg Gly Thr Arg Gly Ser Ala Ala Thr Cys Leu
 115 120 125
 Leu Leu Val Pro Phe Trp Arg Arg Gly Leu Trp Leu Pro Ser Ser Phe
 130 135 140
 Leu Arg Met Glu Ile Ser Ala Gly Trp Leu Asn Phe Lys Ala Gly Arg
 145 150 155 160
 Cys Arg Ser Val Ile Gly Arg Gln Leu Tyr Thr Ser Trp Ala Arg Pro
 165 170 175
 Val Val Gly Arg Ala Ser Gly Pro Val Ile Leu Leu Ser Leu Gly Thr
 180 185 190
 Pro Thr Gly Ser Leu Val Glu Ile Ser Gly Gly Met Asp Ile Met Glu
 195 200 205
 Lys Lys Leu Leu Phe Trp Met Ile Phe Met Ala Gly Tyr Leu Gly Met
 210 215 220
 Ile Tyr Asp Cys Val Thr Gly Ile His Leu Arg Leu Lys Gly Val Leu
 225 230 235 240
 Phe Leu Phe Trp Pro Ala Val Phe Leu Pro Ala Ile Arg Pro Pro Arg
 245 250 255
 Asn Gly Thr Pro Gln Leu Leu Ser Gln Leu Lys Leu Ser Ile Gly Gly
 260 265 270
 Leu Leu Leu Cys Asn Phe Gly Arg Leu Leu Glu Asn Asn Pro Arg Arg
 275 280 285
 Tyr Pro Lys Ala Asp Leu Lys Gln Trp Thr His Pro Val Pro Phe Ser
 290 295 300
 His Ile Lys Ile Thr Glu Ser Phe Leu Leu Ser His Arg Asn Gly Phe
 305 310 315 320

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 325 330 335
 Thr Ile Val Asn Leu Thr Thr Phe Trp Ala Val Val Ala Phe Trp Ser
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 Ala Pro Arg Pro Val Cys Ser Thr Leu Val Trp Val Phe Lys Trp Ser
 355 360 365
 His Ser Trp Phe Leu Leu Leu Phe Gly Trp Asn Gln Ser Ile Val Trp
 370 375 380
 Ser Ser Ser Gly Leu Gly Val Lys Tyr Leu Glu Trp Val Lys Gly Cys
 385 390 395 400
 Leu Met Val Trp Arg Glu Glu Leu Ile Gly Ser Ala Lys Leu Val Glu
 405 410 415
 Gly Val Thr Lys Leu Ala Ser Lys Ile Thr Thr Val Asp Pro Thr Pro
 420 425 430
 Leu Leu Glu Val Met Gly Ser Leu Gly Asn Ser Tyr Leu Ala Phe Leu
 435 440 445
 Ile Arg Tyr Trp Lys Gly Arg Gly Arg Gly Leu Val Pro Pro Glu Gly
 450 455 460
 Gly Arg Asn Trp Pro Met Leu Asn Leu Ser Ser Leu Thr Phe Gln Asp
 465 470 475 480
 Gly Cys Glu Cys Pro Pro Leu Met Val Ser Thr Asn Ser Leu Glu Arg
 485 490 495
 Arg Glu Leu Lys Ile Pro Val Phe Arg Arg His Leu Arg Phe Leu Lys
 500 505 510
 Ala Gly Cys Thr Lys Tyr Gly Leu Leu Arg Arg Met Phe Pro Arg Trp
 515 520 525
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 530 535 540
 Leu Lys Lys Lys Cys Ala Ala Val Val
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<210> 5

<211> 1759

<212> DNA

<213> Type A PWD circovirus

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JESTIN4.txt

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<212> PRT

<213> Type A PWD circovirus

JESTIN4.txt

<400> 6

Gly Ala Cys Lys Pro Leu Pro Leu Val Glu Ala Ala Asp Thr Phe Ile
 1 5 10 15
 Gly Leu Leu Phe Leu Pro Gly Cys Gly Trp Leu Leu His Thr Asn Val
 20 25 30
 Arg Leu Leu Gly Glu Ser Ser Ser Phe Phe Leu Ile Arg Ser Ser Gly
 35 40 45
 Ile Glu Arg Lys Ser Lys Thr Gln Pro Ser Ser Pro Lys Ser Ser Pro
 50 55 60
 Leu Val Gly Arg Trp Pro Asn Ala Phe Lys Ala Leu Phe Cys Val Lys
 65 70 75 80
 Leu Leu Thr Phe His Tyr Lys Pro Ala Arg Gln Trp Met Ser Phe Ala
 85 90 95
 Phe Pro Val Ser Trp Cys Phe Leu Ser Tyr Gln Leu Leu Ser Pro Trp
 100 105 110
 Met Ser Ile Ser His Pro Ala Gly Arg Phe Trp Pro Phe Arg Leu Ser
 115 120 125
 Arg Asp Val Ala Thr Leu Val Arg Lys Ser Val Pro Asp Lys Thr Val
 130 135 140
 Thr Ala Ser Cys Asn Gly Thr Val Tyr Thr Leu Phe Lys Arg Pro Ser
 145 150 155 160
 Ala Ser Ser Lys Phe Thr Leu Pro Phe Ile Cys Cys Arg Ser Gln Phe
 165 170 175
 Val Ala Thr Cys Thr Met Thr Pro Gly Gly Pro Gln Pro Phe Leu Trp
 180 185 190
 His Ala Arg Leu Lys Ala Ser Gly Leu Ser Val Gln Phe Gly Leu Leu
 195 200 205
 Phe Leu His His Ser Pro Tyr Pro Ser Ser Thr Thr Thr Lys Ser Ser
 210 215 220
 Lys Pro Gln Asn Gly Gln Ser Ser Arg Ser Leu Ser His Ser Arg Tyr
 225 230 235 240
 Gly Asn Val Thr Ser Val Leu Pro Pro Val Thr Gly Lys Lys Ala Arg
 245 250 255
 Leu Ile Lys Ile Val Leu Leu Ala Gly Trp Ser His Tyr Glu Glu Val
 260 265 270
 Ala Thr Gly Ala Thr Ser Ala Arg Arg Leu Ile Val Val Lys Cys Asn
 275 280 285
 Gln Phe Val Ala Pro Ser Cys Asp Val Ser Thr Gly Ser Pro Arg Asn
 290 295 300
 Ser Ala Thr Ser Gly Gly Gln Ala Arg Lys Gly Tyr Leu Ile Phe Gln
 305 310 315 320

JESTIN4.txt

Thr Lys Lys Thr Ile Val Asp Tyr His Asn Lys Asn Lys Asn Met Leu
 325 330 335
 Thr Lys Ser Leu Asn Glu Ser Asn Tyr Met Phe Leu Gly Trp Met Ile
 340 345 350
 Lys Pro Gln Pro Gln Met Lys Ser Arg Met Ala Trp Ala Gln Thr Ser
 355 360 365
 Ser Met Pro Thr Pro Ile Ile Ser Gly Cys Ser Thr Glu Lys Ile Ile
 370 375 380
 Gln Ser Ser Gly Ile Leu Gln Lys Thr Ser Gln Asn Pro Pro Ser Thr
 385 390 395 400
 Gly Pro Thr Thr Pro Leu Pro Ser Gly Pro Thr Ala Pro Pro Thr Thr
 405 410 415
 Leu Ile Pro Thr Met Pro Trp Thr Pro Pro Pro Leu Thr Pro Met
 420 425 430
 Trp Ser Leu Leu Leu Pro Gly Leu Val Glu Lys Ile Leu Pro Ser Pro
 435 440 445
 Thr Glu Pro Thr Phe Asn Met Asn Leu Arg Glu Leu Val Thr Thr Asn
 450 455 460
 Ser Leu Tyr Pro Tyr Pro Thr Pro Ala Ala Gln Pro Pro Ser Ser Ser
 465 470 475 480
 Ala Ser Thr Ser Asp Ser Thr Leu Met Gly Leu His Ser Arg Thr Asp
 485 490 495
 Glu Glu Pro Ser Tyr Leu Asn Glu Leu Phe Ala Pro Ile Ser Ser Val
 500 505 510
 Arg Arg Glu Ala Gly Asp Thr Val Thr Glu Ser Pro Pro Thr Tyr Trp
 515 520 525
 Ile His Asp Glu Gly Ser Ser Thr Glu Leu Ile Ala Ala Pro Ala Pro
 530 535 540
 Gly Asp Glu Ala Thr Val Gly Gly Gln Gly Arg Gly Ile Phe Thr Phe
 545 550 555 560
 Ser Thr Arg Gln Gln Leu Ile
 565

<210> 7

<211> 580

<212> PRT

<213> Type A PWD circovirus

<400> 7

Trp Arg Val Glu Ala Ala Ala Ala Gly Arg Cys Arg His Phe His Trp
 1 5 10 15

JESTIN4.txt

Ala Leu Phe Ala Ala Arg Leu Gly Met Leu Pro Pro His Glu Gly Lys
 20 25 30
 Ile Ile Arg Gly Leu Leu Leu Phe Val Phe Tyr Pro Leu Lys Trp Asp
 35 40 45
 Gly Lys Lys Ile Ile Lys Asn Thr Ala Leu Phe Thr Gln Phe Leu Thr
 50 55 60
 Ser Ser Arg Val Glu Leu Pro Lys Arg Ile Lys Ser Leu Leu Leu Ser
 65 70 75 80
 Lys Val Leu His Leu Pro Ile Lys Thr Gly Ala Ala Val Asp Leu Phe
 85 90 95
 Arg Phe Ser Gly Val Leu Leu Ile Phe Phe Val Ala Thr Phe Phe Ala
 100 105 110
 Val Tyr Lys Asp Leu Thr Ser Ser Arg Pro Val Leu Pro Leu Ala Ala
 115 120 125
 Val Gln Arg Ser Ser His Thr Gly Lys Gln Leu Arg Pro Arg Gln His
 130 135 140
 Ser Tyr Gly Leu Leu Lys Arg Tyr Arg Ile His Ser Ile Glu Ala Pro
 145 150 155 160
 Gln Ser Phe Lys Gln Phe His Ala Pro Leu His Leu Leu Thr Ile Pro
 165 170 175
 Leu Cys Ser Tyr Val Asp Tyr His Ala Arg Gly Thr Thr Pro Leu Ala
 180 185 190
 Leu Pro Gly Thr Ile Lys Ser Leu Arg Pro Val Gly Val Pro Leu Arg
 195 200 205
 Thr Ser Ile Leu Pro Pro Ile Ser Ile Met Ser Phe Phe Asn Asn Asn
 210 215 220
 Gln Ile Ile Lys Ile Ala Pro Arg Pro Ile Ile Gln Ser Gln Thr Val
 225 230 235 240
 Pro Ile Trp Gln Ser Tyr Leu Ser Phe Pro Thr Ser Asn Arg Lys Gln
 245 250 255
 Gly Ala Thr Asn Gln Asn Gly Ala Ile Leu Gly Gly Leu Phe Pro Val
 260 265 270
 Gly Ser Ser Asp Trp Ser Tyr Phe Ser Glu Ile Pro Pro Asn Ser Ser
 275 280 285
 Gln Leu Lys Pro Leu Ser Ser Ser Phe Leu Gly Arg Leu Tyr Gly Phe
 290 295 300
 Ala Ser Lys Phe Cys His Val Trp Gly Thr Gly Lys Glu Trp Ile Phe
 305 310 315 320
 Tyr Ile Val Ser Asp Lys Lys Asn Asp Cys Arg Leu Pro Lys Lys Glu
 325 330 335
 Asn Leu Pro Asp Lys Leu Ile Phe Glu Arg Phe Gln Val Tyr Ile Thr
 340 345 350

JESTIN4.txt

Leu Arg Val Val Tyr Asn Gln Ala Thr Thr Ala Asn Gln Leu Ala Tyr
 355 360 365
 Gly Leu Gly Thr His Glu Val Asn Thr His Thr Asn Leu His Leu Trp
 370 375 380
 Leu Gln Asn Arg Lys Asn Asn Pro Gln Phe Trp Asp Ile Thr Gln Asp
 385 390 395 400
 Leu Glu Pro Lys Pro Thr Phe Tyr Arg Ser His Tyr Thr Phe Pro Gln
 405 410 415
 Arg Ile Thr His Arg Ser Ser Tyr Asn Ile His Pro Asp Tyr Ala Leu
 420 425 430
 Asn Thr Ser Pro Thr Val Phe Asn Ala Asp Leu Ile Val Val Thr Ser
 435 440 445
 Gly Val Gly Arg Gln Asn Ser Thr Ile Pro Asp Arg Pro Tyr Phe Glu
 450 455 460
 Tyr Lys Ala Lys Arg Ile Arg Tyr Tyr Gln Phe Pro Leu Pro Leu Pro
 465 470 475 480
 Asn Thr Gly Gly Ser Pro Pro Leu Phe Gln Gly Ile Asn Phe Arg Leu
 485 490 495
 Glu Asn Val Asn Trp Ser Pro Gln Ser His Gly Gly Arg Ile Thr Leu
 500 505 510
 Val Phe Glu Arg Ser Leu Arg Ser Asn Phe Ile Gly Thr Lys Arg Arg
 515 520 525
 Trp Arg Tyr Arg Asn Arg Phe Ala Pro His Val Leu Tyr Pro Arg Arg
 530 535 540
 Arg Leu Ile Asn Gly Leu His Ser Arg Pro Arg Thr Arg Arg Arg Arg
 545 550 555 560
 Tyr Arg Arg Arg Pro Trp Thr Met Arg Tyr Phe His Phe Phe His Ala
 565 570 575
 Ala Thr Thr Asn
 580

<210> 8

<211> 557

<212> PRT

<213> Type A PWD circovirus

<400> 8

Leu Ala Ser Arg Cys Arg Cys Cys Arg Pro Leu Thr Leu Ser Phe Ala
 1 5 10 15
 Leu Cys Ser Phe Arg Gly Ala Val Gly Tyr Ser Thr Pro Thr Gly Tyr
 20 25 30

JESTIN4.txt

Asp Lys Arg Pro Pro Ser Phe Cys Phe Val Pro Ala Glu Leu Arg Gly
 35 40 45
 Lys Gln Asn Asn Gln Lys His Arg Pro Leu Asn Pro Leu Pro Tyr Phe
 50 55 60
 Glu Glu Gly Gly Pro Thr Gln Ser Asn Gln Ser Ala Ser Lys Cys Pro
 65 70 75 80
 Ser Thr Thr Asn Gly His Gly Ser Gly Cys Arg Ser Leu Ser Leu Phe
 85 90 95
 Arg Gly Ala Ser Tyr Leu Ile Ser Cys Tyr Leu Leu Gly Cys Val Arg
 100 105 110
 Thr His Leu Glu Ala Ser Gly Pro Ser Ala Cys Arg Gly Thr Gln Gln
 115 120 125
 Ser Tyr Gly Lys Pro Ser Pro Thr Lys Pro Ser Gln Leu Arg Ala Thr
 130 135 140
 Glu Gln Leu Thr His Ser Phe Asn Gly Arg Ala Pro Gln Val Lys Ser
 145 150 155 160
 Leu Ser Arg Ser Ser Ala Ala Ala His Asn Ser Ser Leu Gln Val Arg
 165 170 175
 Leu Pro Gly Ala Arg Asn His Ser Ser Gly Thr Pro Gly Tyr Asn Gln
 180 185 190
 Gln Ala Pro Cys Arg Ser Ser Ala Tyr Phe Tyr Thr Thr Pro His Ile
 195 200 205
 Asp His Leu Leu Leu Gln Gln Lys Pro His Asn Lys His Ser Thr Val
 210 215 220
 Lys Pro His Asp Val Ser Val Thr His Gly Thr Asp Met Ser Gln Leu
 225 230 235 240
 Ser Leu Pro Tyr Gln Glu Lys Lys Pro Gly Cys Tyr Lys Ser Trp Cys
 245 250 255
 Asp Pro Gly Gly Pro Ile Thr Ser Arg Leu Gln Gln Gly Leu Gln Leu
 260 265 270
 Leu Glu Arg Asp Ser Ser Lys Ala Ile Lys Ser Ser Gln Gln Leu Val
 275 280 285
 Ile Trp Pro Pro Val Arg Leu Gly Ile Gln Leu Leu Pro Gly Val Arg
 290 295 300
 His Gly Lys Gly Met Tyr Phe Leu Asn Ser Leu Arg Lys Gln Met Thr
 305 310 315 320
 Ile Thr Lys Ile Lys Ile Lys Ser Pro Arg Glu Pro Tyr Ile Arg Gln
 325 330 335
 Ile Thr Cys Leu Tyr Asp Val Lys Gly Cys Leu Lys Pro Ser His Asn
 340 345 350
 Cys Lys Pro Ala Cys Leu Gly Pro Arg His Ala Arg Cys Gln His Pro
 355 360 365

JESTIN4.txt

Tyr Lys Phe Pro Ala Val Val Pro Lys Lys Lys Ala Pro Val Leu Asn
 370 375 380
 Asn Pro Arg Ala Arg Thr Gln Pro His Leu Val Gln Leu Pro Leu Tyr
 385 390 395 400
 Leu Ala Ala Lys His His Pro Pro Leu Leu Leu Tyr Leu Pro Leu Gly
 405 410 415
 Leu Gln His Leu Pro Asn Cys Leu Gln Cys Gly Leu Tyr Cys Cys His
 420 425 430
 Val Trp Cys Arg Lys Ser Leu His Pro Arg Gln Pro Leu Ile Ile
 435 440 445
 Gly Lys Tyr Pro Leu Ile Pro Phe Thr Pro Thr Pro Pro Gln His Arg
 450 455 460
 Arg Leu Pro Pro Pro Val Pro Arg His Gln Ile Glu Ala Arg Cys Glu
 465 470 475 480
 Leu Ile Ala Ala Leu Thr Arg Arg Lys His His Thr Cys Ile Arg Phe
 485 490 495
 Pro Pro Phe Gln Leu Tyr Gly Asp Lys Pro Ala Met Gln Leu Pro Lys
 500 505 510
 Gln Leu Arg Pro Thr Gly Phe Ile Thr Lys Glu Pro Pro His Lys Trp
 515 520 525
 Ser Pro Gln Pro Pro Pro Asp Thr Lys Gln Pro Leu Ala Glu Lys Ala
 530 535 540
 Val Asp Asp Leu Leu Ser Leu Leu Ala Ser Ser Tyr Tyr
 545 550 555

<210> 9

<211> 939

<212> DNA

<213> Type A PWD circovirus

<220>

<221> CDS

<222> (1)..(936)

<400> 9

atg cca agc aag aaa agc ggc ccg caa ccc cat aag agg tgg gtg ttc
 Met Pro Ser Lys Lys Ser Gly Pro Gln Pro His Lys Arg Trp Val Phe
 1 5 10 15

48

acc ctt aat aat cct tcc gag gag gag aaa aac aaa ata cgg gag ctt
 Thr Leu Asn Asn Pro Ser Glu Glu Glu Lys Asn Lys Ile Arg Glu Leu
 20 25 30

96

JESTIN4.txt

cca	atc	tcc	ctt	ttt	gat	tat	ttt	gtt	tgt	ggc	gag	gaa	ggt	ttg	gaa	144
Pro	Ile	Ser	Leu	Phe	Asp	Tyr	Phe	Val	Cys	Gly	Glu	Glu	Gly	Leu	Glu	
		35					40					45				
gag	ggt	aga	act	cct	cac	ctc	cag	ggg	ttt	gcg	aat	ttt	gct	aag	aag	192
Glu	Gly	Arg	Thr	Pro	His	Leu	Gln	Gly	Phe	Ala	Asn	Phe	Ala	Lys	Lys	
	50					55					60					
cag	act	ttt	aac	aag	gtg	aag	tgg	tat	ttt	ggt	gcc	cgc	tgc	cac	atc	240
Gln	Thr	Phe	Asn	Lys	Val	Lys	Trp	Tyr	Phe	Gly	Ala	Arg	Cys	His	Ile	
65					70					75					80	
gag	aaa	gcg	aaa	gga	acc	gac	cag	cag	aat	aaa	gaa	tac	tgc	agt	aaa	288
Glu	Lys	Ala	Lys	Gly	Thr	Asp	Gln	Gln	Asn	Lys	Glu	Tyr	Cys	Ser	Lys	
				85					90					95		
gaa	ggc	cac	ata	ctt	atc	gag	tgt	gga	gct	ccg	cgg	aac	cag	ggg	aag	336
Glu	Gly	His	Ile	Leu	Ile	Glu	Cys	Gly	Ala	Pro	Arg	Asn	Gln	Gly	Lys	
			100					105					110			
cgc	agc	gac	ctg	tct	act	gct	gtg	agt	acc	ctt	ttg	gag	acg	ggg	tct	384
Arg	Ser	Asp	Leu	Ser	Thr	Ala	Val	Ser	Thr	Leu	Leu	Glu	Thr	Gly	Ser	
		115					120					125				
ttg	gtg	act	gta	gcc	gag	cag	ttt	cct	gta	acg	tat	gtg	aga	aat	ttc	432
Leu	Val	Thr	Val	Ala	Glu	Gln	Phe	Pro	Val	Thr	Tyr	Val	Arg	Asn	Phe	
	130					135					140					
cgc	ggg	ctg	gct	gaa	ctt	ttg	aaa	gtg	agc	ggg	aag	atg	cag	cag	cgt	480
Arg	Gly	Leu	Ala	Glu	Leu	Leu	Lys	Val	Ser	Gly	Lys	Met	Gln	Gln	Arg	
145					150					155					160	
gat	tgg	aag	aca	gct	gta	cac	gtc	ata	gtg	ggc	ccg	ccc	ggt	tgt	ggg	528
Asp	Trp	Lys	Thr	Ala	Val	His	Val	Ile	Val	Gly	Pro	Pro	Gly	Cys	Gly	
				165					170					175		
aag	agc	cag	tgg	gcc	cgt	aat	ttt	gct	gag	cct	agg	gac	acc	tac	tgg	576
Lys	Ser	Gln	Trp	Ala	Arg	Asn	Phe	Ala	Glu	Pro	Arg	Asp	Thr	Tyr	Trp	
			180					185					190			
aag	cct	agt	aga	aat	aag	tgg	tgg	gat	gga	tat	cat	gga	gaa	gaa	gtt	624
Lys	Pro	Ser	Arg	Asn	Lys	Trp	Trp	Asp	Gly	Tyr	His	Gly	Glu	Glu	Val	
		195					200					205				
gtt	gtt	ttg	gat	gat	ttt	tat	ggc	tgg	tta	cct	tgg	gat	gat	cta	ctg	672
Val	Val	Leu	Asp	Asp	Phe	Tyr	Gly	Trp	Leu	Pro	Trp	Asp	Asp	Leu	Leu	
	210					215					220					
aga	ctg	tgt	gac	cgg	tat	cca	ttg	act	gta	gag	act	aaa	ggg	ggt	act	720
Arg	Leu	Cys	Asp	Arg	Tyr	Pro	Leu	Thr	Val	Glu	Thr	Lys	Gly	Gly	Thr	
225					230					235					240	
gtt	cct	ttt	ttg	gcc	cgc	agt	att	ttg	att	acc	agc	aat	cag	gcc	ccc	768
Val	Pro	Phe	Leu	Ala	Arg	Ser	Ile	Leu	Ile	Thr	Ser	Asn	Gln	Ala	Pro	
				245				250						255		
cag	gaa	tgg	tac	tcc	tca	act	gct	gtc	cca	gct	gta	gaa	gct	ctc	tat	816
Gln	Glu	Trp	Tyr	Ser	Ser	Thr	Ala	Val	Pro	Ala	Val	Glu	Ala	Leu	Tyr	
			260					265					270			
cgg	agg	att	act	act	ttg	caa	ttt	tgg	aag	act	gct	gga	gaa	caa	tcc	864
Arg	Arg	Ile	Thr	Thr	Leu	Gln	Phe	Trp	Lys	Thr	Ala	Gly	Glu	Gln	Ser	
		275					280					285				

JESTIN4.txt

acg gag gta ccc gaa ggc cga ttt gaa gca gtg gac cca ccc tgt gcc 912
 Thr Glu Val Pro Glu Gly Arg Phe Glu Ala Val Asp Pro Pro Cys Ala
 290 295 300

ctt ttc cca tat aaa ata aat tac tga 939
 Leu Phe Pro Tyr Lys Ile Asn Tyr
 305 310

<210> 10

<211> 312

<212> PRT

<213> Type A PWD circovirus

<400> 10

Met Pro Ser Lys Lys Ser Gly Pro Gln Pro His Lys Arg Trp Val Phe
 1 5 10 15

Thr Leu Asn Asn Pro Ser Glu Glu Glu Lys Asn Lys Ile Arg Glu Leu
 20 25 30

Pro Ile Ser Leu Phe Asp Tyr Phe Val Cys Gly Glu Glu Gly Leu Glu
 35 40 45

Glu Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe Ala Lys Lys
 50 55 60

Gln Thr Phe Asn Lys Val Lys Trp Tyr Phe Gly Ala Arg Cys His Ile
 65 70 75 80

Glu Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Glu Tyr Cys Ser Lys
 85 90 95

Glu Gly His Ile Leu Ile Glu Cys Gly Ala Pro Arg Asn Gln Gly Lys
 100 105 110

Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Glu Thr Gly Ser
 115 120 125

Leu Val Thr Val Ala Glu Gln Phe Pro Val Thr Tyr Val Arg Asn Phe
 130 135 140

Arg Gly Leu Ala Glu Leu Leu Lys Val Ser Gly Lys Met Gln Gln Arg
 145 150 155 160

Asp Trp Lys Thr Ala Val His Val Ile Val Gly Pro Pro Gly Cys Gly
 Page 24

Lys Ser Gln Trp Ala Arg Asn Phe Ala Glu Pro Arg Asp Thr Tyr Trp
180 185 190

Lys Pro Ser Arg Asn Lys Trp Trp Asp Gly Tyr His Gly Glu Glu Val
195 200 205

Val Val Leu Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp Asp Leu Leu
210 215 220

Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Glu Thr Lys Gly Gly Thr
225 230 235 240

Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn Gln Ala Pro
245 250 255

Gln Glu Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Glu Ala Leu Tyr
260 265 270

Arg Arg Ile Thr Thr Leu Gln Phe Trp Lys Thr Ala Gly Glu Gln Ser
275 280 285

Thr Glu Val Pro Glu Gly Arg Phe Glu Ala Val Asp Pro Pro Cys Ala
290 295 300

Leu Phe Pro Tyr Lys Ile Asn Tyr
305 310

<210> 11

<211> 702

<212> DNA

<213> Type A PWD circovirus

<220>

<221> CDS

<222> (1)..(699)

<400> 11

atg acg tgg cca agg agg cgt tac cgc aga aga cgg acc cgc ccc cgc 48
Met Thr Trp Pro Arg Arg Arg Tyr Arg Arg Arg Arg Thr Arg Pro Arg
1 5 10 15

agc cat ctt gga aac atc ctc cgg aga aga cca tat ttg gta cac ccc 96
Page 25

JESTIN4.txt

Ser	His	Leu	Gly	Asn	Ile	Leu	Arg	Arg	Arg	Pro	Tyr	Leu	Val	His	Pro	
			20					25					30			
gcc	ttc	aga	aac	cgt	tac	aga	tgg	cgc	cga	aag	acg	ggt	atc	ttc	aat	144
Ala	Phe	Arg	Asn	Arg	Tyr	Arg	Trp	Arg	Arg	Lys	Thr	Gly	Ile	Phe	Asn	
		35					40					45				
tcc	cgc	ctt	tct	aga	gaa	ttt	gta	ctc	acc	ata	aga	gga	gga	cac	tcg	192
Ser	Arg	Leu	Ser	Arg	Glu	Phe	Val	Leu	Thr	Ile	Arg	Gly	Gly	His	Ser	
		50				55					60					
cag	cca	tct	tgg	aat	gtt	aac	gag	ctg	aga	ttc	aac	atc	ggc	cag	ttc	240
Gln	Pro	Ser	Trp	Asn	Val	Asn	Glu	Leu	Arg	Phe	Asn	Ile	Gly	Gln	Phe	
65					70					75					80	
ctc	ccc	ccc	tca	ggc	ggc	acc	aac	ccc	cta	ccc	cta	cct	ttc	caa	tac	288
Leu	Pro	Pro	Ser	Gly	Gly	Thr	Asn	Pro	Leu	Pro	Leu	Pro	Phe	Gln	Tyr	
				85					90					95		
tac	cgt	att	aga	aag	gct	aaa	tat	gaa	ttt	tac	ccc	aga	gac	ccc	atc	336
Tyr	Arg	Ile	Arg	Lys	Ala	Lys	Tyr	Glu	Phe	Tyr	Pro	Arg	Asp	Pro	Ile	
			100					105					110			
acc	tct	aat	caa	aga	ggt	gtt	ggg	tcc	act	ggt	ggt	atc	ttg	gat	gcc	384
Thr	Ser	Asn	Gln	Arg	Gly	Val	Gly	Ser	Thr	Val	Val	Ile	Leu	Asp	Ala	
		115					120					125				
aac	ttt	gta	acc	ccc	tcc	acc	aac	ttg	gcc	tat	gac	ccc	tat	att	aac	432
Asn	Phe	Val	Thr	Pro	Ser	Thr	Asn	Leu	Ala	Tyr	Asp	Pro	Tyr	Ile	Asn	
	130					135					140					
tac	tcc	tcc	cgc	cac	acc	ata	agg	cag	ccc	ttt	acc	tac	cac	tcc	agg	480
Tyr	Ser	Ser	Arg	His	Thr	Ile	Arg	Gln	Pro	Phe	Thr	Tyr	His	Ser	Arg	
145					150					155					160	
tac	ttc	acc	ccc	aaa	cca	gag	cta	gac	caa	aca	att	gat	tgg	ttc	cag	528
Tyr	Phe	Thr	Pro	Lys	Pro	Glu	Leu	Asp	Gln	Thr	Ile	Asp	Trp	Phe	Gln	
				165					170					175		
cca	aat	aat	aaa	aga	aac	cag	ctg	tgg	ctc	cat	tta	aat	acc	cac	acc	576
Pro	Asn	Asn	Lys	Arg	Asn	Gln	Leu	Trp	Leu	His	Leu	Asn	Thr	His	Thr	
			180					185					190			
aat	gtc	gag	cac	aca	ggc	ctg	ggc	tat	gcg	ctc	caa	aat	gca	acc	aca	624
Asn	Val	Glu	His	Thr	Gly	Leu	Gly	Tyr	Ala	Leu	Gln	Asn	Ala	Thr	Thr	
	195						200					205				
gcc	caa	aat	tat	gtg	gta	agg	ttg	act	att	tat	gta	caa	ttc	aga	gaa	672
Ala	Gln	Asn	Tyr	Val	Val	Arg	Leu	Thr	Ile	Tyr	Val	Gln	Phe	Arg	Glu	
	210					215					220					
ttt	atc	ctg	aaa	gac	cct	cta	aat	gaa	taa							702
Phe	Ile	Leu	Lys	Asp	Pro	Leu	Asn	Glu								
225					230											

<210> 12

<211> 233

<212> PRT

<213> Type A PWD circovirus

JESTIN4.txt

<400> 12

Met Thr Trp Pro Arg Arg Arg Tyr Arg Arg Arg Arg Thr Arg Pro Arg
1 5 10 15

Ser His Leu Gly Asn Ile Leu Arg Arg Arg Pro Tyr Leu Val His Pro
20 25 30

Ala Phe Arg Asn Arg Tyr Arg Trp Arg Arg Lys Thr Gly Ile Phe Asn
35 40 45

Ser Arg Leu Ser Arg Glu Phe Val Leu Thr Ile Arg Gly Gly His Ser
50 55 60

Gln Pro Ser Trp Asn Val Asn Glu Leu Arg Phe Asn Ile Gly Gln Phe
65 70 75 80

Leu Pro Pro Ser Gly Gly Thr Asn Pro Leu Pro Leu Pro Phe Gln Tyr
85 90 95

Tyr Arg Ile Arg Lys Ala Lys Tyr Glu Phe Tyr Pro Arg Asp Pro Ile
100 105 110

Thr Ser Asn Gln Arg Gly Val Gly Ser Thr Val Val Ile Leu Asp Ala
115 120 125

Asn Phe Val Thr Pro Ser Thr Asn Leu Ala Tyr Asp Pro Tyr Ile Asn
130 135 140

Tyr Ser Ser Arg His Thr Ile Arg Gln Pro Phe Thr Tyr His Ser Arg
145 150 155 160

Tyr Phe Thr Pro Lys Pro Glu Leu Asp Gln Thr Ile Asp Trp Phe Gln
165 170 175

Pro Asn Asn Lys Arg Asn Gln Leu Trp Leu His Leu Asn Thr His Thr
180 185 190

Asn Val Glu His Thr Gly Leu Gly Tyr Ala Leu Gln Asn Ala Thr Thr
195 200 205

Ala Gln Asn Tyr Val Val Arg Leu Thr Ile Tyr Val Gln Phe Arg Glu
210 215 220

Phe Ile Leu Lys Asp Pro Leu Asn Glu
225 230

JESTIN4.txt

<210> 13
 <211> 621
 <212> DNA
 <213> Type A PWD circovirus

<220>
 <221> CDS
 <222> (1)..(618)

<400> 13
 atg ata tcc atc cca cca ctt att tct act agg ctt cca gta ggt gtc 48
 Met Ile Ser Ile Pro Pro Leu Ile Ser Thr Arg Leu Pro Val Gly Val
 1 5 10 15
 cct agg ctc agc aaa att acg ggc cca ctg gct ctt ccc aca acc ggg 96
 Pro Arg Leu Ser Lys Ile Thr Gly Pro Leu Ala Leu Pro Thr Thr Gly
 20 25 30
 cgg gcc cac tat gac gtg tac agc tgt ctt cca atc acg ctg ctg cat 144
 Arg Ala His Tyr Asp Val Tyr Ser Cys Leu Pro Ile Thr Leu Leu His
 35 40 45
 ctt ccc gct cac ttt caa aag ttc agc cag ccc gcg gaa att tct cac 192
 Leu Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser His
 50 55 60
 ata cgt tac agg aaa ctg ctc ggc tac agt cac caa aga ccc cgt ctc 240
 Ile Arg Tyr Arg Lys Leu Leu Gly Tyr Ser His Gln Arg Pro Arg Leu
 65 70 75 80
 caa aag ggt act cac agc agt aga cag gtc gct gcg ctt ccc ctg gtt 288
 Gln Lys Gly Thr His Ser Ser Arg Gln Val Ala Ala Leu Pro Leu Val
 85 90 95
 ccg cgg agc tcc aca ctc gat aag tat gtg gcc ttc ttt act gca gta 336
 Pro Arg Ser Ser Thr Leu Asp Lys Tyr Val Ala Phe Phe Thr Ala Val
 100 105 110
 ttc ttt att ctg ctg gtc ggt tcc ttt cgc ttt ctc gat gtg gca gcg 384
 Phe Phe Ile Leu Leu Val Gly Ser Phe Arg Phe Leu Asp Val Ala Ala
 115 120 125
 ggc acc aaa ata cca ctt cac ctt gtt aaa agt ctg ctt ctt agc aaa 432
 Gly Thr Lys Ile Pro Leu His Leu Val Lys Ser Leu Leu Ser Lys
 130 135 140
 att cgc aaa ccc ctg gag gtg agg agt tct acc ctc ttc caa acc ttc 480
 Ile Arg Lys Pro Leu Glu Val Arg Ser Ser Thr Leu Phe Gln Thr Phe
 145 150 155 160
 ctc gcc aca aac aaa ata atc aaa aag gga gat tgg aag ctc ccg tat 528
 Leu Ala Thr Asn Lys Ile Ile Lys Lys Gly Asp Trp Lys Leu Pro Tyr

JESTIN4.txt
170

165

175

ttt gtt ttt ctc ctc ctc gga agg att att aag ggt gaa cac cca cct 576
Phe Val Phe Leu Leu Leu Gly Arg Ile Ile Lys Gly Glu His Pro Pro
180 185 190

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<213> Type A PWD circovirus

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35 40 45

Leu Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser His
50 55 60

Ile Arg Tyr Arg Lys Leu Leu Gly Tyr Ser His Gln Arg Pro Arg Leu
65 70 75 80

Gln Lys Gly Thr His Ser Ser Arg Gln Val Ala Ala Leu Pro Leu Val
85 90 95

Pro Arg Ser Ser Thr Leu Asp Lys Tyr Val Ala Phe Phe Thr Ala Val
100 105 110

Phe Phe Ile Leu Leu Val Gly Ser Phe Arg Phe Leu Asp Val Ala Ala
115 120 125

Gly Thr Lys Ile Pro Leu His Leu Val Lys Ser Leu Leu Leu Ser Lys
130 135 140

Ile Arg Lys Pro Leu Glu Val Arg Ser Ser Thr Leu Phe Gln Thr Phe
145 150 155 160

Leu Ala Thr Asn Lys Ile Ile Lys Lys JESTIN4.txt
 165 170 175

Phe Val Phe Leu Leu Leu Gly Arg Ile Ile Lys Gly Glu His Pro Pro
 180 185 190

Leu Met Gly Leu Arg Ala Ala Phe Leu Ala Trp His Phe His
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<210> 15

<211> 1767

<212> DNA

<213> Type B PWD circovirus

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 Thr Cys Pro Ala Arg Arg Met Glu Glu Ala Asp Pro Asn Pro Ile Lys
 20 25 30

ggt ggg tgt tca ctc tga ata atc ctt ccg aag acg agc gca aga aaa 144
 Gly Gly Cys Ser Leu Ile Ile Leu Pro Lys Thr Ser Ala Arg Lys
 35 40 45

tac ggg atc ttc caa tat ccc tat ttg att att tta ttg ttg gcg agg 192
 Tyr Gly Ile Phe Gln Tyr Pro Tyr Leu Ile Ile Leu Leu Leu Ala Arg
 50 55 60

agg gta atg agg aag gac gaa cac ctc acc tcc agg ggt tcg cta att 240
 Arg Val Met Arg Lys Asp Glu His Leu Thr Ser Arg Gly Ser Leu Ile
 65 70 75

ttg tga aga agc aga ctt tta ata aag tga agt ggt att tgg gtg ccc 288
 Leu Leu Arg Ser Arg Leu Leu Ile Lys Ser Gly Ile Trp Val Pro
 80 85 90

gct gcc aca tcg aga aag cga aag gaa cag atc agc aga ata aag aat 336
 Ala Ala Thr Ser Arg Lys Arg Lys Glu Gln Ile Ser Arg Ile Lys Asn
 95 100 105

act gca gta aag aag gca act tac tga tgg agt gtg gag ctc cta gat 384
 Thr Ala Val Lys Lys Ala Thr Tyr Trp Ser Val Glu Leu Leu Asp
 110 115 120

ctc agg gac aac gga gtg acc tgt cta ctg ctg tga gta cct tgt tgg 432
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 125 130 135

aga gcg gga gtc tgg tga ccg ttg cag agc agc acc ctg taa cgt ttg 480
 Arg Ala Gly Val Trp Pro Leu Gln Ser Ser Thr Leu Arg Leu
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tca gaa att tcc gcg ggc tgg ctg aac ttt tga aag tga gcg gga aaa 528
 Ser Glu Ile Ser Ala Gly Trp Leu Asn Phe Lys Ala Gly Lys
 155 160 165

tgc aga agc gtg att gga aga cta atg tac acg tca ttg tgg ggc cac 576
 Cys Arg Ser Val Ile Gly Arg Leu Met Tyr Thr Ser Leu Trp Gly His
 170 175 180

ctg ggt gtg gta aaa gca aat ggg ctg cta att ttg cag acc cgg aaa 624
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 185 190 195

cca cat act gga aac cac cta gaa aca agt ggt ggg atg gtt acc atg 672
 Pro His Thr Gly Asn His Leu Glu Thr Ser Gly Gly Met Val Thr Met
 200 205 210 215

gtg aag aag tgg ttg tta ttg atg act ttt atg gct ggc tgc cct ggg 720
 Val Lys Lys Trp Leu Leu Leu Met Thr Phe Met Ala Gly Cys Pro Gly
 220 225 230

atg atc tac tga gac tgt gtg atc gat atc cat tga ctg tag aga cta 768

JESTIN4.txt

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Lys	Val	Glu	Leu	Tyr	Leu	Phe	Trp	Pro	Ala	Val	Phe		Leu	Pro	Ala	
245					250				255							
atc	aga	ccc	cgt	tgg	aat	ggg	act	cct	caa	ctg	ctg	tcc	cag	ctg	tag	864
Ile	Arg	Pro	Arg	Trp	Asn	Gly	Thr	Pro	Gln	Leu	Leu	Ser	Gln	Leu		
260					265					270						
aag	ctc	ttt	atc	gga	gga	tta	ctt	cct	tgg	tat	ttt	gga	aga	atg	cta	912
Lys	Leu	Phe	Ile	Gly	Gly	Leu	Leu	Pro	Trp	Tyr	Phe	Gly	Arg	Met	Leu	
275					280					285					290	
cag	aac	aat	cca	cgg	agg	aag	ggg	gcc	agt	tcg	tca	ccc	ttt	ccc	ccc	960
Gln	Asn	Asn	Pro	Arg	Arg	Lys	Gly	Ala	Ser	Ser	Ser	Pro	Phe	Pro	Pro	
				295					300					305		
cat	gcc	ctg	aat	ttc	cat	atg	aaa	taa	att	act	gag	tct	ttt	tta	tca	1008
His	Ala	Leu	Asn	Phe	His	Met	Lys		Ile	Thr	Glu	Ser	Phe	Leu	Ser	
				310					315					320		
ctt	cgt	aat	ggg	ttt	tat	tat	tca	tta	agg	gtt	aag	tgg	ggg	gtc	ttt	1056
Leu	Arg	Asn	Gly	Phe	Tyr	Tyr	Ser	Leu	Arg	Val	Lys	Trp	Gly	Val	Phe	
				325				330					335			
aaa	att	aaa	ttc	tct	gaa	ttg	tac	ata	cat	ggg	tac	acg	gat	att	gta	1104
Lys	Ile	Lys	Phe	Ser	Glu	Leu	Tyr	Ile	His	Gly	Tyr	Thr	Asp	Ile	Val	
							345					350				
ttc	ctg	gtc	gta	tat	act	gtt	ttc	gaa	cgc	agt	gcc	gag	gcc	tac	gtg	1152
Phe	Leu	Val	Val	Tyr	Thr	Val	Phe	Glu	Arg	Ser	Ala	Glu	Ala	Tyr	Val	
						360					365					
gtc	tac	att	tcc	agc	agt	ttg	tag	tct	cag	cca	cag	ctg	gtt	tct	ttt	1200
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370					375						380					
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385					390					395						
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Gly	Lys	Val	Pro	Gly	Val	Val	Gly	Glu	Gly	Leu	Gly	Tyr	Gly	Met	Ala	
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gga	gga	gta	gtt	tac	ata	ggg	gtc	ata	ggg	gag	ggc	tgt	ggc	ctt	tgt	1344
Gly	Gly	Val	Val	Tyr	Ile	Gly	Val	Ile	Gly	Glu	Gly	Cys	Gly	Leu	Cys	
				420					425					430		
tac	aaa	gtt	atc	atc	taa	aat	aac	agc	act	gga	gcc	cac	tcc	cct	gtc	1392
Tyr	Lys	Val	Ile	Ile		Asn	Asn	Ser	Thr	Gly	Ala	His	Ser	Pro	Val	
				435					440					445		
acc	ctg	ggg	gat	cgg	gga	gca	ggg	cca	gaa	ttc	aac	ctt	aac	ctt	tct	1440
Thr	Leu	Gly	Asp	Arg	Gly	Ala	Gly	Pro	Glu	Phe	Asn	Leu	Asn	Leu	Ser	
				450				455					460			
tat	tct	gta	gta	ttc	aaa	ggg	cac	aga	gcg	ggg	gtt	tga	ccc	ccc	tcc	1488
Tyr	Ser	Val	Val	Phe	Lys	Gly	His	Arg	Ala	Gly	Val		Pro	Pro	Ser	
				465			470						475			

JESTIN4.txt

tgg	ggg	aag	aaa	gtc	att	aat	att	gaa	tct	cat	cat	gtc	cac	cgc	cca	1536
Trp	Gly	Lys	Lys	Val	Ile	Asn	Ile	Glu	Ser	His	His	Val	His	Arg	Pro	
		480					485					490				
gga	ggg	cgt	tct	gac	tgt	ggg	tcg	ctt	gac	agt	ata	tcc	gaa	ggg	gcg	1584
Gly	Gly	Arg	Ser	Asp	Cys	Gly	Ser	Leu	Asp	Ser	Ile	Ser	Glu	Gly	Ala	
	495					500					505					
gga	gag	gcg	ggg	gtt	gaa	gat	gcc	att	ttt	cct	tct	cca	gcg	gta	acg	1632
Gly	Glu	Ala	Gly	Val	Glu	Asp	Ala	Ile	Phe	Pro	Ser	Pro	Ala	Val	Thr	
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gtg	gcg	ggg	gtg	gac	gag	cca	ggg	gcg	gcg	gcg	gag	gat	ctg	gcc	aag	1680
Val	Ala	Gly	Val	Asp	Glu	Pro	Gly	Ala	Ala	Ala	Glu	Asp	Leu	Ala	Lys	
				530					535					540		
atg	gct	gcg	ggg	gcg	gtg	tct	tct	tct	tcg	gta	acg	cct	cct	tgg	ata	1728
Met	Ala	Ala	Gly	Ala	Val	Ser	Ser	Ser	Ser	Val	Thr	Pro	Pro	Trp	Ile	
			545					550					555			
cgt	cat	atc	tga	aaa	cga	aag	aag	tgc	gct	gta	agt	att				1767
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<211> 569

<212> PRT

<213> Type B PWD circovirus

<400> 16

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			20					25					30		
Gly	Gly	Cys	Ser	Leu	Ile	Ile	Leu	Pro	Lys	Thr	Ser	Ala	Arg	Lys	Tyr
		35					40					45			
Gly	Ile	Phe	Gln	Tyr	Pro	Tyr	Leu	Ile	Ile	Leu	Leu	Leu	Ala	Arg	Arg
	50					55					60				
Val	Met	Arg	Lys	Asp	Glu	His	Leu	Thr	Ser	Arg	Gly	Ser	Leu	Ile	Leu
65					70					75					80
Arg	Ser	Arg	Leu	Leu	Ile	Lys	Ser	Gly	Ile	Trp	Val	Pro	Ala	Ala	Thr
			85						90					95	
Ser	Arg	Lys	Arg	Lys	Glu	Gln	Ile	Ser	Arg	Ile	Lys	Asn	Thr	Ala	Val
			100					105					110		

JESTIN4.txt

Lys Lys Ala Thr Tyr Trp Ser Val Glu Leu Leu Asp Leu Arg Asp Asn
115 120 125

Gly Val Thr Cys Leu Leu Leu Val Pro Cys Trp Arg Ala Gly Val Trp
130 135 140

Pro Leu Gln Ser Ser Thr Leu Arg Leu Ser Glu Ile Ser Ala Gly Trp
145 150 155 160

Leu Asn Phe Lys Ala Gly Lys Cys Arg Ser Val Ile Gly Arg Leu Met
165 170 175

Tyr Thr Ser Leu Trp Gly His Leu Gly Val Val Lys Ala Asn Gly Leu
180 185 190

Leu Ile Leu Gln Thr Arg Lys Pro His Thr Gly Asn His Leu Glu Thr
195 200 205

Ser Gly Gly Met Val Thr Met Val Lys Lys Trp Leu Leu Leu Met Thr
210 215 220

Phe Met Ala Gly Cys Pro Gly Met Ile Tyr Asp Cys Val Ile Asp Ile
225 230 235 240

His Leu Arg Leu Lys Val Glu Leu Tyr Leu Phe Trp Pro Ala Val Phe
245 250 255

Leu Pro Ala Ile Arg Pro Arg Trp Asn Gly Thr Pro Gln Leu Leu Ser
260 265 270

Gln Leu Lys Leu Phe Ile Gly Gly Leu Leu Pro Trp Tyr Phe Gly Arg
275 280 285

Met Leu Gln Asn Asn Pro Arg Arg Lys Gly Ala Ser Ser Ser Pro Phe
290 295 300

Pro Pro His Ala Leu Asn Phe His Met Lys Ile Thr Glu Ser Phe Leu
305 310 315 320

Ser Leu Arg Asn Gly Phe Tyr Tyr Ser Leu Arg Val Lys Trp Gly Val
325 330 335

Phe Lys Ile Lys Phe Ser Glu Leu Tyr Ile His Gly Tyr Thr Asp Ile
340 345 350

Val Phe Leu Val Val Tyr Thr Val Phe Glu Arg Ser Ala Glu Ala Tyr
Page 36

355

360

365

Val Val Tyr Ile Ser Ser Ser Leu Ser Gln Pro Gln Leu Val Ser Phe
 370 375 380

Val Val Trp Leu Glu Val Ile Asn Ser Glu Ile Asp Arg Phe Gly Gly
 385 390 395 400

Lys Val Pro Gly Val Val Gly Glu Gly Leu Gly Tyr Gly Met Ala Gly
 405 410 415

Gly Val Val Tyr Ile Gly Val Ile Gly Glu Gly Cys Gly Leu Cys Tyr
 420 425 430

Lys Val Ile Ile Asn Asn Ser Thr Gly Ala His Ser Pro Val Thr Leu
 435 440 445

Gly Asp Arg Gly Ala Gly Pro Glu Phe Asn Leu Asn Leu Ser Tyr Ser
 450 455 460

Val Val Phe Lys Gly His Arg Ala Gly Val Pro Pro Ser Trp Gly Lys
 465 470 475 480

Lys Val Ile Asn Ile Glu Ser His His Val His Arg Pro Gly Gly Arg
 485 490 495

Ser Asp Cys Gly Ser Leu Asp Ser Ile Ser Glu Gly Ala Gly Glu Ala
 500 505 510

Gly Val Glu Asp Ala Ile Phe Pro Ser Pro Ala Val Thr Val Ala Gly
 515 520 525

Val Asp Glu Pro Gly Ala Ala Ala Glu Asp Leu Ala Lys Met Ala Ala
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<210> 17

<211> 542

<212> PRT

<213> Type B PWD circovirus

JESTIN4.txt

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 35 40 45
 Ser Ser Asn Ile Pro Ile Leu Phe Tyr Cys Trp Arg Gly Gly Gly Arg
 50 55 60
 Thr Asn Thr Ser Pro Pro Gly Val Arg Phe Cys Glu Glu Ala Asp Phe
 65 70 75 80
 Ser Glu Val Val Phe Gly Cys Pro Leu Pro His Arg Glu Ser Glu Arg
 85 90 95
 Asn Arg Ser Ala Glu Arg Ile Leu Gln Arg Arg Gln Leu Thr Asp Gly
 100 105 110
 Val Trp Ser Ser Ile Ser Gly Thr Thr Glu Pro Val Tyr Cys Cys Glu
 115 120 125
 Tyr Leu Val Gly Glu Arg Glu Ser Gly Asp Arg Cys Arg Ala Ala Pro
 130 135 140
 Cys Asn Val Cys Gln Lys Phe Pro Arg Ala Gly Thr Phe Glu Ser Glu
 145 150 155 160
 Arg Glu Asn Ala Glu Ala Cys Thr Arg His Cys Gly Ala Thr Trp Val
 165 170 175
 Trp Lys Gln Met Gly Cys Phe Cys Arg Pro Gly Asn His Ile Leu Glu
 180 185 190
 Thr Thr Lys Gln Val Val Gly Trp Leu Pro Trp Arg Ser Gly Cys Tyr
 195 200 205
 Leu Leu Trp Leu Ala Ala Leu Gly Ser Thr Glu Thr Val Ser Ile Ser
 210 215 220
 Ile Asp Cys Arg Asp Arg Trp Asn Cys Thr Phe Phe Gly Pro Gln Tyr
 225 230 235 240
 Ser Asp Tyr Gln Gln Ser Asp Pro Val Gly Met Val Leu Leu Asn Cys
 245 250 255
 Cys Pro Ser Cys Arg Ser Ser Leu Ser Glu Asp Tyr Phe Leu Gly Ile
 260 265 270
 Leu Glu Glu Cys Tyr Arg Thr Ile His Gly Gly Arg Gly Pro Val Arg
 275 280 285
 His Pro Phe Pro Pro Met Pro Asn Lys Leu Leu Ser Leu Phe Tyr His
 290 295 300
 Phe Val Met Val Phe Ile Ile His Gly Leu Ser Gly Gly Ser Leu Lys
 305 310 315 320

JESTIN4.txt

Leu Asn Ser Leu Asn Cys Thr Tyr Met Val Thr Arg Ile Leu Tyr Ser
 325 330 335
 Trp Ser Tyr Ile Leu Phe Ser Asn Ala Val Pro Arg Pro Thr Trp Ser
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 Thr Phe Pro Ala Val Cys Ser Leu Ser His Ser Trp Phe Leu Leu Leu
 355 360 365
 Phe Gly Trp Lys Ser Ile Val Lys Ser Arg Thr Gly Leu Gly Val Lys
 370 375 380
 Tyr Arg Glu Trp Glu Lys Gly Trp Val Met Val Trp Arg Glu Glu Val
 385 390 395 400
 Arg Ala Val Ala Phe Val Thr Lys Leu Ser Ser Lys Ile Thr Ala Leu
 405 410 415
 Glu Pro Thr Pro Leu Ser Pro Trp Val Ile Gly Glu Gln Gly Gln Asn
 420 425 430
 Ser Thr Leu Thr Phe Leu Ile Leu Tyr Ser Lys Gly Thr Glu Arg Gly
 435 440 445
 Phe Asp Pro Pro Pro Gly Gly Arg Lys Ser Leu Ile Leu Asn Leu Ile
 450 455 460
 Met Ser Thr Ala Gln Glu Gly Val Leu Thr Val Val Arg Leu Thr Val
 465 470 475 480
 Tyr Pro Lys Val Arg Glu Arg Arg Val Leu Lys Met Pro Phe Phe Leu
 485 490 495
 Leu Gln Arg Arg Trp Arg Gly Trp Thr Ser Gln Gly Arg Arg Arg Arg
 500 505 510
 Ile Trp Pro Arg Trp Leu Arg Gly Arg Cys Leu Leu Leu Arg Arg Leu
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<210> 18

<211> 566

<212> PRT

<213> Type B PWD circovirus

<400> 18

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JESTIN4.txt

Arg Asp Leu Pro Ile Ser Leu Phe Asp Tyr Phe Ile Val Gly Glu Glu
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 Gly Asn Glu Glu Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe
 65 70 75 80
 Val Lys Lys Gln Thr Phe Asn Lys Val Lys Trp Tyr Leu Gly Ala Arg
 85 90 95
 Cys His Ile Glu Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Glu Tyr
 100 105 110
 Cys Ser Lys Glu Gly Asn Leu Leu Met Glu Cys Gly Ala Pro Arg Ser
 115 120 125
 Gln Gly Gln Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Glu
 130 135 140
 Ser Gly Ser Leu Val Thr Val Ala Glu Gln His Pro Val Thr Phe Val
 145 150 155 160
 Arg Asn Phe Arg Gly Leu Ala Glu Leu Leu Lys Val Ser Gly Lys Met
 165 170 175
 Gln Lys Arg Asp Trp Lys Thr Asn Val His Val Ile Val Gly Pro Pro
 180 185 190
 Gly Cys Gly Lys Ser Lys Trp Ala Ala Asn Phe Ala Asp Pro Glu Thr
 195 200 205
 Thr Tyr Trp Lys Pro Pro Arg Asn Lys Trp Trp Asp Gly Tyr His Gly
 210 215 220
 Glu Glu Val Val Val Ile Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp
 225 230 235 240
 Asp Leu Leu Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Glu Thr Lys
 245 250 255
 Gly Gly Thr Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn
 260 265 270
 Gln Thr Pro Leu Glu Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Glu
 275 280 285
 Ala Leu Tyr Arg Arg Ile Thr Ser Leu Val Phe Trp Lys Asn Ala Thr
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 Glu Gln Ser Thr Glu Glu Gly Gly Gln Phe Val Thr Leu Ser Pro Pro
 305 310 315 320
 Cys Pro Glu Phe Pro Tyr Glu Ile Asn Tyr Val Phe Phe Ile Thr Ser
 325 330 335
 Trp Phe Leu Leu Phe Ile Lys Gly Val Gly Gly Leu Ile Val His Thr
 340 345 350
 Trp Leu His Gly Tyr Cys Ile Pro Gly Arg Ile Tyr Cys Phe Arg Thr
 355 360 365
 Gln Cys Arg Gly Leu Arg Gly Leu His Phe Gln Gln Phe Val Val Ser
 370 375 380

JESTIN4.txt

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 Gly Gln Val Trp Gly Ser Thr Gly Ser Gly Arg Arg Arg Ala Gly Leu
 405 410 415
 Trp Tyr Gly Gly Arg Ser Ser Leu His Arg Gly His Arg Gly Leu Trp
 420 425 430
 Pro Leu Leu Gln Ser Tyr His Leu Lys Gln His Trp Ser Pro Leu Pro
 435 440 445
 Cys His Pro Gly Ser Gly Ser Arg Ala Arg Ile Gln Pro Pro Phe Leu
 450 455 460
 Phe Cys Ser Ile Gln Arg Ala Gln Ser Gly Gly Leu Thr Pro Leu Leu
 465 470 475 480
 Gly Glu Glu Ser His Ile Ser Ser Cys Pro Pro Pro Arg Arg Ala Phe
 485 490 495
 Leu Trp Phe Ala Gln Tyr Ile Arg Arg Cys Gly Arg Gly Gly Cys Arg
 500 505 510
 Cys His Phe Ser Phe Ser Ser Gly Asn Gly Gly Gly Gly Gly Arg Ala
 515 520 525
 Arg Gly Gly Gly Gly Gly Ser Gly Gln Asp Gly Cys Gly Gly Gly Val
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 Glu Val Arg Cys Lys Tyr
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<210> 19

<211> 1767

<212> DNA

<213> Type B PWD circovirus

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 gtccaccccc gccaccgtta ccgctggaga aggaaaaatg gcattttcaa caccgcctc 180
 tcccgcacct tcggatatac tgtcaagcga accacagtca gaacgccctc ctgggcggtg 240
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 tctgtgccct ttgaatacta cagaataaga aagggttaagg ttgaattctg gccctgctcc 360
 ccgatcacc aggggtgacag gggagtgggc tccagtgtg ttattttaga tgataacttt 420
 gtaacaaagg ccacagccct cacctatgac ccctatgtaa actactcctc ccgccatacc 480

JESTIN4.txt

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actattgatt acttccaacc aaacaacaaa agaaaccagc tgtggctgag actacaaact 600
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gaatacaata tccgtgtaac catgtatgta caattcagag aatttaattt taaagacccc 720
ccacttaacc cttaatgaat aataaaaacc attacgaagt gataaaaaag actcagtaat 780
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cttctacagc tgggacagca gttgaggagt accattccaa cggggctga ttgctggtaa 960
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<210> 20

<211> 567

<212> PRT

<213> Type B PWD circovirus

<400> 20

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Gly Ala Cys Lys Pro Leu Pro Leu Val Glu Ala Ala Gly Cys Cys Cys
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Ala Trp Cys Ser Ser His Phe Phe Arg Val Gly Val Gly Tyr Phe Thr
20      25      30

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JESTIN4.txt

Pro Thr Glu Ser Tyr Asp Lys Arg Leu Arg Ala Cys Ser Phe Val Pro
 35 40 45
 Asp Glu Leu Ile Gly Ile Gln Asn Asn Gln Gln Arg Pro Pro Tyr His
 50 55 60
 Pro Leu Val Phe Val Glu Gly Gly Pro Thr Arg Asn Gln Ser Ser Ala
 65 70 75 80
 Ser Lys Tyr Leu Ser Thr Thr Asn Pro His Gly Ser Gly Cys Arg Ser
 85 90 95
 Leu Ser Leu Phe Leu Asp Ala Ser Tyr Leu Ile Ser Cys Tyr Leu Leu
 100 105 110
 Cys Ser Val Ser Pro Thr His Leu Glu Ile Glu Pro Val Val Ser His
 115 120 125
 Gly Thr Gln Gln Ser Tyr Arg Thr Pro Ser Arg Ser Asp Pro Ser Arg
 130 135 140
 Gln Leu Ala Ala Gly Gln Leu Thr Gln Phe Asn Gly Arg Ala Pro Gln
 145 150 155 160
 Val Lys Ser Leu Ser Arg Ser Phe Ala Ser Ala His Asn Ser Ser His
 165 170 175
 Val Arg Gln Pro Ala Val Gln Thr His Tyr Phe Cys Ile Pro Gln Asn
 180 185 190
 Gln Leu Gly Pro Phe Trp Met Ser Ser Val Val Phe Cys Thr Thr Pro
 195 200 205
 His Asn Gly His His Leu Leu Pro Gln Gln His Ser Lys His Ser Ala
 210 215 220
 Ala Arg Pro His Asp Val Ser Val Thr His Asp Ile Asp Met Ser Gln
 225 230 235 240
 Leu Ser Leu His Phe Gln Val Lys Lys Pro Gly Cys Tyr Glu Ser Trp
 245 250 255
 Cys Asp Ser Gly Thr Pro Ile Thr Ser Arg Leu Gln Gln Gly Leu Gln
 260 265 270
 Leu Leu Glu Lys Asp Ser Ser Lys Arg Pro Ile Lys Ser Ser His Leu
 275 280 285
 Val Ile Trp Pro Pro Leu Pro Gly Thr Arg Gly Lys Gly Gly Met Gly
 290 295 300
 Gln Ile Glu Met His Phe Leu Asn Ser Leu Arg Lys Lys Thr Ile Thr
 305 310 315 320
 Lys Ile Ile Pro Asn Leu Pro Pro Asp Lys Phe Asn Phe Glu Arg Phe
 325 330 335
 Gln Val Tyr Met Thr Val Arg Ile Asn Tyr Glu Gln Asp Tyr Ile Ser
 340 345 350
 Asn Glu Phe Ala Thr Gly Leu Gly Val His Asp Val Asn Gly Ala Thr
 355 360 365

JESTIN4.txt

Gln Leu Arg Leu Trp Leu Gln Asn Arg Lys Asn Asn Pro Gln Phe Tyr
 370 375 380
 Asp Ile Thr Phe Asp Leu Val Pro Lys Pro Thr Phe Tyr Arg Ser His
 385 390 395 400
 Tyr Ser Phe Pro Gln Thr Ile Thr His Arg Ser Ser Tyr Asn Val Tyr
 405 410 415
 Pro Asp Tyr Thr Leu Ala Thr Ala Lys Thr Val Pro Asn Asp Asp Leu
 420 425 430
 Ile Val Ala Ser Ser Gly Val Gly Arg Asp Gly Gln Thr Ile Pro Ser
 435 440 445
 Cys Pro Trp Phe Glu Val Lys Val Lys Arg Ile Arg Tyr Tyr Glu Phe
 450 455 460
 Pro Val Ser Arg Pro Asn Ser Gly Gly Gly Pro Pro Leu Phe Asp Asn
 465 470 475 480
 Ile Asn Phe Arg Met Met Asp Val Ala Trp Ser Pro Thr Arg Val Thr
 485 490 495
 Thr Arg Lys Val Thr Tyr Gly Phe Thr Arg Ser Leu Arg Thr Asn Phe
 500 505 510
 Ile Gly Asn Lys Arg Arg Trp Arg Tyr Arg His Arg Pro His Val Leu
 515 520 525
 Trp Pro Arg Arg Arg Leu Ile Gln Gly Leu His Ser Arg Pro Arg His
 530 535 540
 Arg Arg Arg Arg Tyr Arg Arg Arg Pro Tyr Thr Met Asp Ser Phe Ser
 545 550 555 560
 Leu Leu Ala Ser Tyr Thr Asn
 565

<210> 21

<211> 566

<212> PRT

<213> Type B PWD circovirus

<400> 21

Trp Arg Val Glu Ala Ala Ala Ala Gly Arg Cys Cys Arg Leu Leu Leu
 1 5 10 15
 Met Gly Leu Leu Phe Phe Pro Leu Leu Pro Gly Trp Gly Trp Leu Leu
 20 25 30
 His Thr Asn Val Arg Phe Leu Gly Glu Ser Ser Ser Arg Leu Phe Ile
 35 40 45
 Arg Ser Arg Gly Ile Asp Arg Asn Ser Lys Ile Thr Pro Ser Ser Pro
 50 55 60

JESTIN4.txt

Leu Ser Ser Pro Arg Val Gly Arg Trp Pro Asn Ala Leu Lys Thr Phe
 65 70 75 80
 Phe Cys Val Lys Leu Leu Thr Phe His Tyr Lys Pro Ala Arg Gln Trp
 85 90 95
 Met Ser Phe Ala Phe Pro Val Ser Cys Phe Leu Ser Tyr Gln Leu Leu
 100 105 110
 Ser Pro Leu Lys Ser Ile Ser His Pro Ala Gly Leu Asp Pro Cys Arg
 115 120 125
 Leu Ser Arg Asp Val Ala Thr Leu Val Lys Asn Ser Leu Pro Leu Arg
 130 135 140
 Thr Val Thr Ala Ser Cys Cys Gly Thr Val Asn Thr Leu Phe Lys Arg
 145 150 155 160
 Pro Ser Ala Ser Ser Lys Phe Thr Leu Pro Phe Ile Cys Phe Arg Ser
 165 170 175
 Gln Phe Val Leu Thr Cys Thr Met Thr Pro Gly Gly Pro His Pro Leu
 180 185 190
 Leu Leu His Ala Ala Leu Lys Ala Ser Gly Ser Val Val Tyr Gln Phe
 195 200 205
 Gly Gly Leu Phe Leu His His Ser Pro Trp Pro Ser Ser Thr Thr Thr
 210 215 220
 Ile Ser Ser Lys Pro Gln Ser Gly Gln Ser Ser Arg Ser Leu Ser His
 225 230 235 240
 Ser Arg Tyr Gly Asn Val Thr Ser Val Leu Pro Pro Val Thr Gly Lys
 245 250 255
 Lys Ala Arg Leu Ile Arg Ile Val Leu Leu Val Gly Asn Ser His Tyr
 260 265 270
 Glu Glu Val Ala Thr Gly Ala Thr Ser Ala Arg Arg Leu Ile Val Glu
 275 280 285
 Lys Thr Asn Gln Phe Phe Ala Val Ser Cys Asp Val Ser Ser Pro Pro
 290 295 300
 Trp Asn Thr Val Arg Glu Gly Gly His Gly Ser Asn Gly Tyr Ser Ile
 305 310 315 320
 Phe Gln Thr Lys Lys Ile Val Glu Tyr His Asn Lys Asn Asn Met Leu
 325 330 335
 Pro Thr Pro Pro Arg Phe Ile Arg Gln Ile Thr Cys Val His Asn Cys
 340 345 350
 Pro Tyr Gln Ile Gly Pro Arg Ile Tyr Gln Lys Arg Val Cys His Arg
 355 360 365
 Pro Arg Arg Pro Arg Cys Lys Trp Cys Asn Thr Thr Glu Ala Val Ala
 370 375 380
 Pro Lys Lys Gln Gln Lys Thr Pro Leu Leu Tyr His Phe Arg Pro Cys
 385 390 395 400

JESTIN4.txt

Thr Gln Pro Tyr Leu Val Pro Leu Pro Leu Leu Leu Ala Pro Asn His
 405 410 415
 Tyr Pro Pro Leu Leu Leu Lys Cys Leu Pro Leu His Pro Ser His Gly
 420 425 430
 Lys Asn Cys Leu Arg Phe Tyr Cys Cys Gln Leu Gly Ser Gly Gln Gly
 435 440 445
 Pro His Asp Pro Leu Leu Ala Leu Ile Gly Gly Lys Lys Asn Gln Leu
 450 455 460
 Ile Leu Ala Cys Leu Pro Pro Lys Val Gly Arg Arg Pro Ser Ser Leu
 465 470 475 480
 Tyr Gln Ile Glu Asp His Gly Gly Gly Leu Leu Ala Asn Gln Ser His
 485 490 495
 Asn Ala Gln Cys Tyr Ile Arg Leu His Pro Leu Pro Pro His Gln Leu
 500 505 510
 His Trp Lys Glu Lys Glu Leu Pro Leu Pro Pro Pro Pro Arg Ala
 515 520 525
 Leu Pro Pro Pro Pro Pro Asp Pro Trp Ser Pro Gln Pro Pro Pro Thr
 530 535 540
 Lys Lys Lys Pro Leu Ala Glu Lys Ser Val Asp Tyr Arg Phe Val Phe
 545 550 555 560
 Ser Thr Arg Gln Leu Tyr
 565

<210> 22

<211> 569

<212> PRT

<213> Type B PWD circovirus

<400> 22

Leu Ala Ser Arg Cys Arg Cys Cys Arg Pro Leu Val Glu Ala Ala Val
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 His Gly Ala Leu Leu Ile Ser Ser Ala Ser Gly Leu Gly Met Phe Pro
 20 25 30
 Pro His Glu Ser Gln Ile Ile Arg Gly Phe Val Leu Ala Leu Phe Tyr
 35 40 45
 Pro Ile Lys Trp Tyr Gly Lys Ile Ile Lys Asn Asn Ala Leu Leu Thr
 50 55 60
 Ile Leu Phe Ser Ser Cys Arg Val Glu Leu Pro Glu Ser Ile Lys His
 65 70 75 80
 Leu Leu Leu Ser Lys Ile Phe His Leu Pro Ile Gln Thr Gly Ala Ala
 85 90 95

JESTIN4.txt

Val Asp Leu Phe Arg Phe Ser Cys Ile Leu Leu Ile Phe Phe Val Ala
 100 105 110
 Thr Phe Phe Ala Val Gln His Leu Thr Ser Ser Arg Ser Arg Leu Ser
 115 120 125
 Leu Pro Thr Val Gln Arg Ser Ser His Thr Gly Gln Gln Leu Ala Pro
 130 135 140
 Thr Gln His Gly Asn Cys Leu Leu Val Arg Tyr Arg Lys Asp Ser Ile
 145 150 155 160
 Glu Ala Pro Gln Ser Phe Lys Gln Phe His Ala Pro Phe His Leu Leu
 165 170 175
 Thr Ile Pro Leu Ser Ile Tyr Val Asp Asn His Pro Trp Arg Pro Thr
 180 185 190
 Thr Phe Ala Phe Pro Ser Ser Ile Lys Cys Val Arg Phe Gly Cys Val
 195 200 205
 Pro Phe Trp Arg Ser Val Leu Pro Pro Ile Thr Val Met Thr Phe Phe
 210 215 220
 His Asn Asn Asn Ile Val Lys Ile Ala Pro Gln Gly Pro Ile Ile Gln
 225 230 235 240
 Ser Gln Thr Ser Ser Ile Trp Gln Ser Tyr Leu Ser Phe Thr Ser Ser
 245 250 255
 Tyr Arg Lys Gln Gly Ala Thr Asn Gln Asn Gly Ala Ile Leu Gly Arg
 260 265 270
 Gln Phe Pro Val Gly Ser Ser Asp Trp Ser Tyr Phe Ser Lys Ile Pro
 275 280 285
 Pro Asn Ser Gly Gln Tyr Lys Pro Leu Ile Ser Cys Phe Leu Gly Arg
 290 295 300
 Leu Phe Pro Ala Leu Glu Asp Gly Lys Gly Gly Trp Ala Arg Phe Lys
 305 310 315 320
 Trp Ile Phe Trp Ile Val Ser Asp Lys Lys Asp Ser Arg Leu Pro Lys
 325 330 335
 Glu Asn Leu Thr Leu His Pro Thr Lys Leu Ile Leu Asn Glu Ser Asn
 340 345 350
 Tyr Met Cys Pro Val Ser Ile Thr Asn Arg Thr Thr Tyr Val Thr Lys
 355 360 365
 Ser Arg Leu Ala Ser Ala Thr Thr Met Glu Leu Leu Lys Tyr Asp Gly
 370 375 380
 Cys Ser Thr Glu Lys Thr Thr Gln Asn Ser Thr Ile Leu Leu Ser Ile
 385 390 395 400
 Ser Leu Asn Pro Pro Leu Thr Gly Pro Thr Thr Pro Ser Pro Ser Pro
 405 410 415
 Pro Ile Ala Pro Pro Thr Thr Met Pro Thr Met Pro Ser Pro Gln Pro
 420 425 430

JESTIN4.txt

Arg Gln Leu Thr Ile Met Phe Leu Leu Val Pro Ala Trp Glu Gly Thr
 435 440 445
 Val Arg Pro Ser Arg Pro Ala Pro Gly Ser Asn Leu Arg Leu Arg Glu
 450 455 460
 Glu Thr Thr Asn Leu Pro Cys Leu Ala Pro Thr Gln Gly Gly Glu Gln
 465 470 475 480
 Pro Phe Phe Thr Met Leu Ile Ser Asp Thr Trp Arg Gly Pro Pro Arg
 485 490 495
 Glu Ser Gln Pro Glu Ser Ser Leu Ile Asp Ser Pro Ala Pro Ser Ala
 500 505 510
 Pro Thr Ser Ser Ala Met Lys Gly Glu Gly Ala Thr Val Thr Ala Pro
 515 520 525
 Thr Ser Ser Gly Pro Ala Ala Ala Ser Ser Arg Ala Leu Ile Ala Ala
 530 535 540
 Pro Ala Thr Asp Glu Glu Glu Thr Val Gly Gly Gln Ile Arg Ile Gln
 545 550 555 560
 Phe Arg Phe Phe His Ala Thr Leu Ile
 565

<210> 23

<211> 945

<212> DNA

<213> Type B PWD circovirus

<220>

<221> CDS

<222> (1)..(942)

<400> 23

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tgg gtg ttc act ctg aat aat cct tcc gaa gac gag cgc aag aaa ata	96
Trp Val Phe Thr Leu Asn Asn Pro Ser Glu Asp Glu Arg Lys Lys Ile	
20 25 30	
cgg gat ctt cca ata tcc cta ttt gat tat ttt att gtt ggc gag gag	144
Arg Asp Leu Pro Ile Ser Leu Phe Asp Tyr Phe Ile Val Gly Glu Glu	
35 40 45	
ggt aat gag gaa gga cga aca cct cac ctc cag ggg ttc gct aat ttt	192
Gly Asn Glu Glu Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe	
50 55 60	

JESTIN4.txt

gtg Val 65	aag Lys	aag Lys	cag Gln	act Thr	ttt Phe 70	aat Asn	aaa Lys	gtg Val	aag Lys	tgg Trp 75	tat Tyr	ttg Leu	ggt Gly	gcc Ala	cgc Arg 80	240
tgc Cys	cac His	atc Ile	gag Glu	aaa Lys 85	gcg Ala	aaa Lys	gga Gly	aca Thr	gat Asp 90	cag Gln	cag Gln	aat Asn	aaa Lys	gaa Glu 95	tac Tyr	288
tgc Cys	agt Ser	aaa Lys	gaa Glu 100	ggc Gly	aac Asn	tta Leu	ctg Leu	atg Met 105	gag Glu	tgt Cys	gga Gly	gct Ala	cct Pro 110	aga Arg	tct Ser	336
cag Gln	gga Gly	caa Gln 115	cgg Arg	agt Ser	gac Asp	ctg Leu	tct Ser 120	act Thr	gct Ala	gtg Val	agt Ser	acc Thr 125	ttg Leu	ttg Leu	gag Glu	384
agc Ser	ggg Gly 130	agt Ser	ctg Leu	gtg Val	acc Thr	gtt Val 135	gca Ala	gag Glu	cag Gln	cac His	cct Pro 140	gta Val	acg Thr	ttt Phe	gtc Val	432
aga Arg 145	aat Asn	ttc Phe	cgc Arg	ggg Gly	ctg Leu 150	gct Ala	gaa Glu	ctt Leu	ttg Leu	aaa Lys 155	gtg Val	agc Ser	ggg Gly	aaa Lys	atg Met 160	480
cag Gln	aag Lys	cgt Arg	gat Asp	tgg Trp 165	aag Lys	act Thr	aat Asn	gta Val	cac His 170	gtc Val	att Ile	gtg Val	ggg Gly	cca Pro 175	cct Pro	528
ggg Gly	tgt Cys	ggt Gly	aaa Lys 180	agc Ser	aaa Lys	tgg Trp	gct Ala	gct Ala 185	aat Asn	ttt Phe	gca Ala	gac Asp	ccg Pro 190	gaa Glu	acc Thr	576
aca Thr	tac Tyr	tgg Trp 195	aaa Lys	cca Pro	cct Pro	aga Arg	aac Asn 200	aag Lys	tgg Trp	tgg Trp	gat Asp	ggt Gly 205	tac Tyr	cat His	ggt Gly	624
gaa Glu	gaa Glu 210	gtg Val	gtt Val	gtt Val	att Ile	gat Asp 215	gac Asp	ttt Phe	tat Tyr	ggc Gly	tgg Trp 220	ctg Leu	ccc Pro	tgg Trp	gat Asp	672
gat Asp 225	cta Leu	ctg Leu	aga Arg	ctg Leu	tgt Cys 230	gat Asp	cga Arg	tat Tyr	cca Pro	ttg Leu 235	act Thr	gta Val	gag Glu	act Thr	aaa Lys 240	720
ggt Gly	gga Gly	act Thr	gta Val	cct Pro 245	ttt Phe	ttg Leu	gcc Ala	cgc Arg	agt Ser 250	att Ile	ctg Leu	att Ile	acc Thr	agc Ser 255	aat Asn	768
cag Gln	acc Thr	ccg Pro	ttg Leu 260	gaa Glu	tgg Trp	tac Tyr	tcc Ser 265	tca Ser 265	act Thr	gct Ala	gtc Val	cca Pro	gct Ala 270	gta Val	gaa Glu	816
gct Ala	ctt Leu	tat Tyr 275	cgg Arg	agg Arg	att Ile	act Thr	tcc Ser 280	ttg Leu	gta Val	ttt Phe	tgg Trp	aag Lys 285	aat Asn	gct Ala	aca Thr	864
gaa Glu	caa Gln 290	tcc Ser	acg Thr	gag Glu	gaa Glu	ggg Gly 295	ggc Gly	cag Gln	ttc Phe	gtc Val	acc Thr 300	ctt Leu	tcc Ser	ccc Pro	cca Pro	912
tgc Cys 305	cct Pro	gaa Glu	ttt Phe	cca Pro	tat Tyr 310	gaa Glu	ata Ile	aat Asn	tac Tyr	tga						945

JESTIN4.txt

<210> 24

<211> 314

<212> PRT

<213> Type B PWD circovirus

<400> 24

Met Pro Ser Lys Lys Asn Gly Arg Ser Gly Pro Gln Pro His Lys Arg
1 5 10 15

Trp Val Phe Thr Leu Asn Asn Pro Ser Glu Asp Glu Arg Lys Lys Ile
20 25 30

Arg Asp Leu Pro Ile Ser Leu Phe Asp Tyr Phe Ile Val Gly Glu Glu
35 40 45

Gly Asn Glu Glu Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe
50 55 60

Val Lys Lys Gln Thr Phe Asn Lys Val Lys Trp Tyr Leu Gly Ala Arg
65 70 75 80

Cys His Ile Glu Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Glu Tyr
85 90 95

Cys Ser Lys Glu Gly Asn Leu Leu Met Glu Cys Gly Ala Pro Arg Ser
100 105 110

Gln Gly Gln Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Glu
115 120 125

Ser Gly Ser Leu Val Thr Val Ala Glu Gln His Pro Val Thr Phe Val
130 135 140

Arg Asn Phe Arg Gly Leu Ala Glu Leu Leu Lys Val Ser Gly Lys Met
145 150 155 160

Gln Lys Arg Asp Trp Lys Thr Asn Val His Val Ile Val Gly Pro Pro
165 170 175

Gly Cys Gly Lys Ser Lys Trp Ala Ala Asn Phe Ala Asp Pro Glu Thr
180 185 190

Thr Tyr Trp Lys Pro Pro Arg Asn Lys Trp Trp Asp Gly Tyr His Gly
Page 50

195

200

205

Glu Glu Val Val Val Ile Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp
 210 215 220

Asp Leu Leu Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Glu Thr Lys
 225 230 235 240

Gly Gly Thr Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn
 245 250 255

Gln Thr Pro Leu Glu Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Glu
 260 265 270

Ala Leu Tyr Arg Arg Ile Thr Ser Leu Val Phe Trp Lys Asn Ala Thr
 275 280 285

Glu Gln Ser Thr Glu Glu Gly Gly Gln Phe Val Thr Leu Ser Pro Pro
 290 295 300

Cys Pro Glu Phe Pro Tyr Glu Ile Asn Tyr
 305 310

<210> 25

<211> 702

<212> DNA

<213> Type B PWD circovirus

<220>

<221> CDS

<222> (1)..(699)

<400> 25

atg acg tat cca agg agg cgt tac cga aga aga aga cac cgc ccc cgc 48
 Met Thr Tyr Pro Arg Arg Arg Tyr Arg Arg Arg Arg His Arg Pro Arg
 1 5 10 15

agc cat ctt ggc cag atc ctc cgc cgc cgc ccc tgg ctc gtc cac ccc 96
 Ser His Leu Gly Gln Ile Leu Arg Arg Arg Pro Trp Leu Val His Pro
 20 25 30

cgc cac cgt tac cgc tgg aga agg aaa aat ggc atc ttc aac acc cgc 144
 Arg His Arg Tyr Arg Trp Arg Arg Lys Asn Gly Ile Phe Asn Thr Arg
 35 40 45

ctc tcc cgc acc ttc gga tat act gtc aag cga acc aca gtc aga acg 192

JESTIN4.txt

Leu	Ser	Arg	Thr	Phe	Gly	Tyr	Thr	Val	Lys	Arg	Thr	Val	Arg	Thr		
50						55			60							
ccc	tcc	tgg	gcg	gtg	gac	atg	atg	aga	ttc	aat	att	aat	gac	ttt	ctt	240
Pro	Ser	Trp	Ala	Val	Asp	Met	Met	Arg	Phe	Asn	Ile	Asn	Asp	Phe	Leu	
65					70				75						80	
ccc	cca	gga	ggg	ggg	tca	aac	ccc	cgc	tct	gtg	ccc	ttt	gaa	tac	tac	288
Pro	Pro	Gly	Gly	Gly	Ser	Asn	Pro	Arg	Ser	Val	Pro	Phe	Glu	Tyr	Tyr	
				85					90					95		
aga	ata	aga	aag	gtt	aag	gtt	gaa	ttc	tgg	ccc	tgc	tcc	ccg	atc	acc	336
Arg	Ile	Arg	Lys	Val	Lys	Val	Glu	Phe	Trp	Pro	Cys	Ser	Pro	Ile	Thr	
			100					105					110			
cag	ggt	gac	agg	gga	gtg	ggc	tcc	agt	gct	gtt	att	tta	gat	gat	aac	384
Gln	Gly	Asp	Arg	Gly	Val	Gly	Ser	Ser	Ala	Val	Ile	Leu	Asp	Asp	Asn	
		115					120					125				
ttt	gta	aca	aag	gcc	aca	gcc	ctc	acc	tat	gac	ccc	tat	gta	aac	tac	432
Phe	Val	Thr	Lys	Ala	Thr	Ala	Leu	Thr	Tyr	Asp	Pro	Tyr	Val	Asn	Tyr	
	130					135					140					
tcc	tcc	cgc	cat	acc	ata	acc	cag	ccc	ttc	tcc	tac	cac	tcc	cgg	tac	480
Ser	Ser	Arg	His	Thr	Ile	Thr	Gln	Pro	Phe	Ser	Tyr	His	Ser	Arg	Tyr	
145					150					155					160	
ttt	acc	ccc	aaa	cct	gtc	cta	gat	ttc	act	att	gat	tac	ttc	caa	cca	528
Phe	Thr	Pro	Lys	Pro	Val	Leu	Asp	Phe	Thr	Ile	Asp	Tyr	Phe	Gln	Pro	
				165					170					175		
aac	aac	aaa	aga	aac	cag	ctg	tgg	ctg	aga	cta	caa	act	gct	gga	aat	576
Asn	Asn	Lys	Arg	Asn	Gln	Leu	Trp	Leu	Arg	Leu	Gln	Thr	Ala	Gly	Asn	
			180					185					190			
gta	gac	cac	gta	ggc	ctc	ggc	act	gcg	ttc	gaa	aac	agt	ata	tac	gac	624
Val	Asp	His	Val	Gly	Leu	Gly	Thr	Ala	Phe	Glu	Asn	Ser	Ile	Tyr	Asp	
		195					200					205				
cag	gaa	tac	aat	atc	cgt	gta	acc	atg	tat	gta	caa	ttc	aga	gaa	ttt	672
Gln	Glu	Tyr	Asn	Ile	Arg	Val	Thr	Met	Tyr	Val	Gln	Phe	Arg	Glu	Phe	
	210					215					220					
aat	ttt	aaa	gac	ccc	cca	ctt	aac	cct	taa							702
Asn	Phe	Lys	Asp	Pro	Pro	Leu	Asn	Pro								
225					230											

<210> 26

<211> 233

<212> PRT

<213> Type B PWD circovirus

<400> 26

Met	Thr	Tyr	Pro	Arg	Arg	Arg	Tyr	Arg	Arg	Arg	His	Arg	Pro	Arg		
1				5				10					15			

JESTIN4.txt

Ser His Leu Gly Gln Ile Leu Arg Arg Arg Pro Trp Leu Val His Pro
20 25 30

Arg His Arg Tyr Arg Trp Arg Arg Lys Asn Gly Ile Phe Asn Thr Arg
35 40 45

Leu Ser Arg Thr Phe Gly Tyr Thr Val Lys Arg Thr Thr Val Arg Thr
50 55 60

Pro Ser Trp Ala Val Asp Met Met Arg Phe Asn Ile Asn Asp Phe Leu
65 70 75 80

Pro Pro Gly Gly Gly Ser Asn Pro Arg Ser Val Pro Phe Glu Tyr Tyr
85 90 95

Arg Ile Arg Lys Val Lys Val Glu Phe Trp Pro Cys Ser Pro Ile Thr
100 105 110

Gln Gly Asp Arg Gly Val Gly Ser Ser Ala Val Ile Leu Asp Asp Asn
115 120 125

Phe Val Thr Lys Ala Thr Ala Leu Thr Tyr Asp Pro Tyr Val Asn Tyr
130 135 140

Ser Ser Arg His Thr Ile Thr Gln Pro Phe Ser Tyr His Ser Arg Tyr
145 150 155 160

Phe Thr Pro Lys Pro Val Leu Asp Phe Thr Ile Asp Tyr Phe Gln Pro
165 170 175

Asn Asn Lys Arg Asn Gln Leu Trp Leu Arg Leu Gln Thr Ala Gly Asn
180 185 190

Val Asp His Val Gly Leu Gly Thr Ala Phe Glu Asn Ser Ile Tyr Asp
195 200 205

Gln Glu Tyr Asn Ile Arg Val Thr Met Tyr Val Gln Phe Arg Glu Phe
210 215 220

Asn Phe Lys Asp Pro Pro Leu Asn Pro
225 230

<210> 27

<211> 315

<212> DNA

<213> Type B PWD circovirus

<220>

<221> CDS

<222> (1)..(312)

<400> 27

atg	gta	acc	atc	cca	cca	ctt	gtt	tct	agg	tgg	ttt	cca	gta	tgt	ggc	48
Met	Val	Thr	Ile	Pro	Pro	Leu	Val	Ser	Arg	Trp	Phe	Pro	Val	Cys	Gly	
1				5					10					15		

ttc	cgg	gtc	tgc	aaa	att	agc	agc	cca	ttt	gct	ttt	acc	aca	ccc	agg	96
Phe	Arg	Val	Cys	Lys	Ile	Ser	Ser	Pro	Phe	Ala	Phe	Thr	Thr	Pro	Arg	
			20					25					30			

tgg	ccc	cac	aat	gac	gtg	tac	att	agt	ctt	cca	atc	acg	ctt	ctg	cat	144
Trp	Pro	His	Asn	Asp	Val	Tyr	Ile	Ser	Leu	Pro	Ile	Thr	Leu	Leu	His	
		35				40						45				

ttt	ccc	gct	cac	ttt	caa	aag	ttc	agc	cag	ccc	gcg	gaa	att	tct	gac	192
Phe	Pro	Ala	His	Phe	Gln	Lys	Phe	Ser	Gln	Pro	Ala	Glu	Ile	Ser	Asp	
	50					55					60					

aaa	cgt	tac	agg	gtg	ctg	ctc	tgc	aac	ggc	cac	cag	act	ccc	gct	ctc	240
Lys	Arg	Tyr	Arg	Val	Leu	Leu	Cys	Asn	Gly	His	Gln	Thr	Pro	Ala	Leu	
65				70					75						80	

caa	caa	ggc	act	cac	agc	agt	aga	cag	gtc	act	ccg	ttg	tcc	ctg	aga	288
Gln	Gln	Gly	Thr	His	Ser	Ser	Arg	Gln	Val	Thr	Pro	Leu	Ser	Leu	Arg	
				85					90					95		

tct	agg	agc	tcc	aca	ctc	cat	cag	taa								315
Ser	Arg	Ser	Ser	Thr	Leu	His	Gln									
			100													

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Phe	Arg	Val	Cys	Lys	Ile	Ser	Ser	Pro	Phe	Ala	Phe	Thr	Thr	Pro	Arg
			20					25					30		

Trp	Pro	His	Asn	Asp	Val	Tyr	Ile	Ser	Leu	Pro	Ile	Thr	Leu	Leu	His
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

35

40

Phe Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser Asp
50 55 60

Lys Arg Tyr Arg Val Leu Leu Cys Asn Gly His Gln Thr Pro Ala Leu
65 70 75 80

Gln Gln Gly Thr His Ser Ser Arg Gln Val Thr Pro Leu Ser Leu Arg
85 90 95

Ser Arg Ser Ser Thr Leu His Gln
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Val Asp Met Met Arg Phe Asn Ile Asn Asp Phe Leu Pro Pro Gly
1 5 10 15

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<212> PRT

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Gln Gly Asp Arg Gly Val Gly Ser Ser Ala Val Ile Leu Asp Asp
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<400> 31

Gly Val Gly Ser Ser Ala Val Ile Leu Asp Asp Asn Phe Val Thr
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JESTIN4.txt

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<212> PRT

<213> Type B PWD circovirus

<400> 32

Val Asp His Val Gly Leu Gly Thr Ala Phe Glu Asn Ser Ile Tyr
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<211> 8

<212> DNA

<213> Type A PWD circovirus

<400> 33

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8

<210> 34

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<212> DNA

<213> Type A PWD circovirus

<400> 34

agtttcct

8

<210> 35

<211> 20

<212> DNA

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20

<210> 36

<211> 8

<212> DNA

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gtggttgc

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8

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12

JESTIN4.txt

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atctcagctc gt

12

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tgtcctcctc tt

12

<210> 43
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<400> 43
tctctaga

8

<210> 44
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tgtaccaa

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<400> 45
tccgtctt

8

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<400> 46
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<400> 47
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<400> 48
ctcgagcca tcttggaatg

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<210> 49

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<400> 49
cgcgcgtaat acgactcact

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JESTIN4.txt

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<212> DNA

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<400> 50

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<210> 51

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<400> 51

gcagtagaca ggtcactccg ttgtcc

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<210> 52

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<212> DNA

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<400> 52

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<211> 23

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<213> Primer

<400> 53

ggcggcgcca tctgtaacgg ttt

23

<210> 54

<211> 23

<212> DNA

<213> Primer

<400> 54
gatggcgccg aaagacgggt atc

23

<210> 55

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Asn Val Asn Glu Leu Arg Phe Asn Ile Gly Gln Phe Leu Pro Pro
1 5 10 15

<210> 56

<211> 14

<212> PRT

<213> Type A PWD circovirus

<400> 56

Thr Ser Asn Gln Arg Gly Val Gly Ser Thr val val Ile Leu
1 5 10

<210> 57

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 57

Arg Gly val Gly Ser Thr val val Ile Leu Asp Ala Asn Phe Val
1 5 10 15

<210> 58

<211> 15

<212> PRT

<213> Type B PWD circovirus

JESTIN4.txt

<400> 58

Phe Thr Ile Asp Tyr Phe Gln Pro Asn Asn Lys Arg Asn Gln Leu
1 5 10 15

<210> 59

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<212> PRT

<213> Type A PWD circovirus

<400> 59

Asp Gln Thr Ile Asp Trp Phe Gln Pro Asn Asn Lys Arg Asn Gln
1 5 10 15

<210> 60

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<212> PRT

<213> Type A PWD circovirus

<400> 60

Asn Val Glu His Thr Gly Leu Gly Tyr Ala Leu Gln Asn Ala Thr
1 5 10 15

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<212> PRT

<213> Type B PWD circovirus

<400> 61

His Arg Pro Arg Ser His Leu Gly Gln Ile Leu Arg Arg Arg Pro
1 5 10 15

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<213> Type B PWD circovirus

<400> 62

JESTIN4.txt

Ser His Leu Gly Gln Ile Leu Arg Arg Arg Pro Trp Leu Val His
 1 5 10 15

<210> 63

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 63

Gln Ile Leu Arg Arg Arg Pro Trp Leu Val His Pro Arg His Arg
 1 5 10 15

<210> 64

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<212> PRT

<213> Type B PWD circovirus

<400> 64

Arg Arg Pro Trp Leu Val His Pro Arg His Arg Tyr Arg Trp Arg
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<210> 65

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<212> PRT

<213> Type B PWD circovirus

<400> 65

Leu Val His Pro Arg His Arg Tyr Arg Trp Arg Arg Lys Asn Gly
 1 5 10 15

<210> 66

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 66

Arg His Arg Tyr Arg Trp Arg Arg Lys Asn Gly Ile Phe Asn Thr
 1 5 10 15

<210> 67

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 67

Arg	Trp	Arg	Arg	Lys	Asn	Gly	Ile	Phe	Asn	Thr	Arg	Leu	Ser	Arg
1				5					10					15

<210> 68

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 68

Lys	Asn	Gly	Ile	Phe	Asn	Thr	Arg	Leu	Ser	Arg	Thr	Phe	Gly	Tyr
1				5					10					15

<210> 69

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 69

Phe	Asn	Thr	Arg	Leu	Ser	Arg	Thr	Phe	Gly	Tyr	Thr	Val	Lys	Arg
1				5					10					15

<210> 70

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<212> PRT

<213> Type B PWD circovirus

<400> 70

Leu	Ser	Arg	Thr	Phe	Gly	Tyr	Thr	Val	Lys	Arg	Thr	Thr	Val	Arg
1				5					10					15

<210> 71

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 71

Phe	Gly	Tyr	Thr	Val	Lys	Arg	Thr	Thr	Val	Arg	Thr	Pro	Ser	Trp
1				5					10					15

<210> 72

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<212> PRT

<213> Type B PWD circovirus

<400> 72

Val	Lys	Arg	Thr	Thr	Val	Arg	Thr	Pro	Ser	Trp	Ala	Val	Asp	Met
1				5					10					15

<210> 73

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 73

Thr	Val	Arg	Thr	Pro	Ser	Trp	Ala	Val	Asp	Met	Met	Arg	Phe	Asn
1				5					10					15

<210> 74

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 74

Pro	Ser	Trp	Ala	Val	Asp	Met	Met	Arg	Phe	Asn	Ile	Asn	Asp	Phe
1				5					10					15

<210> 75

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 75

Arg Phe Asn Ile Asn Asp Phe Leu Pro Pro Gly Gly Gly Ser Asn
1 5 10 15

<210> 76

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 76

Asn Asp Phe Leu Pro Pro Gly Gly Gly Ser Asn Pro Arg Ser Val
1 5 10 15

<210> 77

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 77

Pro Pro Gly Gly Gly Ser Asn Pro Arg Ser Val Pro Phe Glu Tyr
1 5 10 15

<210> 78

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 78

Gly Ser Asn Pro Arg Ser Val Pro Phe Glu Tyr Tyr Arg Ile Arg
1 5 10 15

<210> 79

<211> 15

<212> PRT

<213> Type B PWD circovirus

JESTIN4.txt

<400> 79

Arg Ser Val Pro Phe Glu Tyr Tyr Arg Ile Arg Lys Val Lys Val
1 5 10 15

<210> 80

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 80

Phe Glu Tyr Tyr Arg Ile Arg Lys Val Lys Val Glu Phe Trp Pro
1 5 10 15

<210> 81

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 81

Arg Ile Arg Lys Val Lys Val Glu Phe Trp Pro Cys Ser Pro Ile
1 5 10 15

<210> 82

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<212> PRT

<213> Type B PWD circovirus

<400> 82

Val Lys Val Glu Phe Trp Pro Cys Ser Pro Ile Thr Gln Gly Asp
1 5 10 15

<210> 83

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<212> PRT

<213> Type B PWD circovirus

<400> 83

Phe Trp Pro Cys Ser Pro Ile Thr Gln Gly Asp Arg Gly Val Gly
 1 5 10 15

<210> 84

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 84

Thr Arg Pro Arg Ser His Leu Gly Asn Ile Leu Arg Arg Arg Pro
 1 5 10 15

<210> 85

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<212> PRT

<213> Type A PWD circovirus

<400> 85

Ser His Leu Gly Asn Ile Leu Arg Arg Arg Pro Tyr Leu Val His
 1 5 10 15

<210> 86

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 86

Asn Ile Leu Arg Arg Arg Pro Tyr Leu Val His Pro Ala Phe Arg
 1 5 10 15

<210> 87

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 87

Arg Arg Pro Tyr Leu Val His Pro Ala Phe Arg Asn Arg Tyr Arg
 1 5 10 15

<210> 88

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 88

Leu	Val	His	Pro	Ala	Phe	Arg	Asn	Arg	Tyr	Arg	Trp	Arg	Arg	Lys
1				5					10					15

<210> 89

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 89

Ala	Phe	Arg	Asn	Arg	Tyr	Arg	Trp	Arg	Arg	Lys	Thr	Gly	Ile	Phe
1				5					10					15

<210> 90

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 90

Arg	Tyr	Arg	Trp	Arg	Arg	Lys	Thr	Gly	Ile	Phe	Asn	Ser	Arg	Leu
1				5					10					15

<210> 91

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 91

Arg	Arg	Lys	Thr	Gly	Ile	Phe	Asn	Ser	Arg	Leu	Ser	Arg	Glu	Phe
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<210> 92

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 92

Gly Ile Phe Asn Ser Arg Leu Ser Arg Glu Phe Val Leu Thr Ile
1 5 10 15

<210> 93

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 93

Ser Arg Leu Ser Arg Glu Phe Val Leu Thr Ile Arg Gly Gly His
1 5 10 15

<210> 94

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 94

Arg Glu Phe Val Leu Thr Ile Arg Gly Gly His Ser Gln Pro Ser
1 5 10 15

<210> 95

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 95

Leu Thr Ile Arg Gly Gly His Ser Gln Pro Ser Trp Asn Val Asn
1 5 10 15

<210> 96

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 96

Gly Gly His Ser Gln Pro Ser Trp Asn Val Asn Glu Leu Arg Phe
1 5 10 15

<210> 97

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 97

Gln Pro Ser Trp Asn Val Asn Glu Leu Arg Phe Asn Ile Gly Gln
1 5 10 15

<210> 98

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 98

Asn Val Asn Glu Leu Arg Phe Asn Ile Gly Gln Phe Leu Pro Pro
1 5 10 15

<210> 99

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 99

Leu Arg Phe Asn Ile Gly Gln Phe Leu Pro Pro Ser Gly Gly Thr
1 5 10 15

<210> 100

<211> 15

<212> PRT

<213> Type A PWD circovirus

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1				5				10					15	

<210> 101

<211> 15

<212> PRT

<213> Type A PWD circovirus

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Leu	Pro	Pro	Ser	Gly	Gly	Thr	Asn	Pro	Leu	Pro	Leu	Pro	Phe	Gln
1				5				10					15	

<210> 102

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 102

Gly	Gly	Thr	Asn	Pro	Leu	Pro	Leu	Pro	Phe	Gln	Tyr	Tyr	Arg	Ile
1				5				10					15	

<210> 103

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 103

Pro	Leu	Pro	Leu	Pro	Phe	Gln	Tyr	Tyr	Arg	Ile	Arg	Lys	Ala	Lys
1				5					10				15	

<210> 104

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 104

JESTIN4.txt

Pro Phe Gln Tyr Tyr Arg Ile Arg Lys Ala Lys Tyr Glu Phe Tyr
1 5 10 15

<210> 105

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 105

Tyr Arg Ile Arg Lys Ala Lys Tyr Glu Phe Tyr Pro Arg Asp Pro
1 5 10 15

<210> 106

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 106

Lys Ala Lys Tyr Glu Phe Tyr Pro Arg Asp Pro Ile Thr Ser Asn
1 5 10 15

<210> 107

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 107

Glu Phe Tyr Pro Arg Asp Pro Ile Thr Ser Asn Gln Arg Gly Val
1 5 10 15

<210> 108

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 108

Arg Asp Pro Ile Thr Ser Asn Gln Arg Gly Val Gly Ser Thr Val
1 5 10 15

<210> 109

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 109

Thr	Ser	Asn	Gln	Arg	Gly	Val	Gly	Ser	Thr	Val	Val	Ile	Leu	Asp
1				5					10					15

<210> 110

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<212> PRT

<213> Type B PWD circovirus

<400> 110

Gly	Val	Gly	Ser	Ser	Ala	Val	Ile	Leu	Asp	Asp	Asn	Phe	Val	Thr
1				5					10					15

<210> 111

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 111

Ser	Ala	Val	Ile	Leu	Asp	Asp	Asn	Phe	Val	Thr	Lys	Ala	Thr	Ala
1				5					10					15

<210> 112

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<212> PRT

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<400> 112

Leu	Asp	Asp	Asn	Phe	Val	Thr	Lys	Ala	Thr	Ala	Leu	Thr	Tyr	Asp
1				5					10					15

<210> 113

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<212> PRT

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<400> 113

Phe Val Thr Lys Ala Thr Ala Leu Thr Tyr Asp Pro Tyr Val Asn
1 5 10 15

<210> 114

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 114

Ala Thr Ala Leu Thr Tyr Asp Pro Tyr Val Asn Tyr Ser Ser Arg
1 5 10 15

<210> 115

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 115

Thr Tyr Asp Pro Tyr Val Asn Tyr Ser Ser Arg His Thr Ile Thr
1 5 10 15

<210> 116

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 116

Tyr Val Asn Tyr Ser Ser Arg His Thr Ile Thr Gln Pro Phe Ser
1 5 10 15

<210> 117

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 117

Ser Ser Arg His Thr Ile Thr Gln Pro Phe Ser Tyr His Ser Arg
1 5 10 15

<210> 118

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 118

Thr Ile Thr Gln Pro Phe Ser Tyr His Ser Arg Tyr Phe Thr Pro
1 5 10 15

<210> 119

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 119

Pro Phe Ser Tyr His Ser Arg Tyr Phe Thr Pro Lys Pro Val Leu
1 5 10 15

<210> 120

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 120

His Ser Arg Tyr Phe Thr Pro Lys Pro Val Leu Asp Phe Thr Ile
1 5 10 15

<210> 121

<211> 15

<212> PRT

<213> Type B PWD circovirus

JESTIN4.txt

<400> 121

Phe Thr Pro Lys Pro Val Leu Asp Phe Thr Ile Asp Tyr Phe Gln
1 5 10 15

<210> 122

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 122

Pro Val Leu Asp Phe Thr Ile Asp Tyr Phe Gln Pro Asn Asn Lys
1 5 10 15

<210> 123

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 123

Phe Thr Ile Asp Tyr Phe Gln Pro Asn Asn Lys Arg Asn Gln Leu
1 5 10 15

<210> 124

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 124

Tyr Phe Gln Pro Asn Asn Lys Arg Asn Gln Leu Trp Leu Arg Leu
1 5 10 15

<210> 125

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 125

JESTIN4.txt

Asn Asn Lys Arg Asn Gln Leu Trp Leu Arg Leu Gln Thr Ala Gly
 1 5 10 15

<210> 126

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 126

Asn Gln Leu Trp Leu Arg Leu Gln Thr Ala Gly Asn Val Asp His
 1 5 10 15

<210> 127

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 127

Leu Arg Leu Gln Thr Ala Gly Asn Val Asp His Val Gly Leu Gly
 1 5 10 15

<210> 128

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 128

Thr Ala Gly Asn Val Asp His Val Gly Leu Gly Thr Ala Phe Glu
 1 5 10 15

<210> 129

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 129

Gly Leu Gly Thr Ala Phe Glu Asn Ser Ile Tyr Asp Gln Glu Tyr
 1 5 10 15

JESTIN4.txt

<210> 130

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 130

Ala Phe Glu Asn Ser Ile Tyr Asp Gln Glu Tyr Asn Ile Arg Val
1 5 10 15

<210> 131

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 131

Ser Ile Tyr Asp Gln Glu Tyr Asn Ile Arg Val Thr Met Tyr Val
1 5 10 15

<210> 132

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 132

Gln Glu Tyr Asn Ile Arg Val Thr Met Tyr Val Gln Phe Arg Glu
1 5 10 15

<210> 133

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 133

Ile Arg Val Thr Met Tyr Val Gln Phe Arg Glu Phe Asn Phe Lys
1 5 10 15

<210> 134

<211> 15

JESTIN4.txt

<212> PRT

<213> Type B PWD circovirus

<400> 134

Met Tyr Val Gln Phe Arg Glu Phe Asn Phe Lys Asp Pro Pro Leu
1 5 10 15

<210> 135

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 135

Val Gln Phe Arg Glu Phe Asn Phe Lys Asp Pro Pro Leu Asn Pro
1 5 10 15

<210> 136

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 136

Arg Gly Val Gly Ser Thr Val Val Ile Leu Asp Ala Asn Phe Val
1 5 10 15

<210> 137

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 137

Ser Thr Val Val Ile Leu Asp Ala Asn Phe Val Thr Pro Ser Thr
1 5 10 15

<210> 138

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 138

Ile Leu Asp Ala Asn Phe Val Thr Pro Ser Thr Asn Leu Ala Tyr
1 5 10 15

<210> 139

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 139

Asn Phe Val Thr Pro Ser Thr Asn Leu Ala Tyr Asp Pro Tyr Ile
1 5 10 15

<210> 140

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 140

Pro Ser Thr Asn Leu Ala Tyr Asp Pro Tyr Ile Asn Tyr Ser Ser
1 5 10 15

<210> 141

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 141

Leu Ala Tyr Asp Pro Tyr Ile Asn Tyr Ser Ser Arg His Thr Ile
1 5 10 15

<210> 142

<211> 15

<212> PRT

<213> Type A PWD circovirus

JESTIN4.txt

<400> 142

Pro Tyr Ile Asn Tyr Ser Ser Arg His Thr Ile Arg Gln Pro Phe
1 5 10 15

<210> 143

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 143

Tyr Ser Ser Arg His Thr Ile Arg Gln Pro Phe Thr Tyr His Ser
1 5 10 15

<210> 144

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 144

His Thr Ile Arg Gln Pro Phe Thr Tyr His Ser Arg Tyr Phe Thr
1 5 10 15

<210> 145

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 145

Gln Pro Phe Thr Tyr His Ser Arg Tyr Phe Thr Pro Lys Pro Glu
1 5 10 15

<210> 146

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 146

Tyr His Ser Arg Tyr Phe Thr Pro Lys Pro Glu Leu Asp Gln Thr
 1 5 10 15

<210> 147

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 147

Tyr Phe Thr Pro Lys Pro Glu Leu Asp Gln Thr Ile Asp Trp Phe
 1 5 10 15

<210> 148

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 148

Lys Pro Glu Leu Asp Gln Thr Ile Asp Trp Phe Gln Pro Asn Asn
 1 5 10 15

<210> 149

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 149

Asp Gln Thr Ile Asp Trp Phe Gln Pro Asn Asn Lys Arg Asn Gln
 1 5 10 15

<210> 150

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 150

Asp Trp Phe Gln Pro Asn Asn Lys Arg Asn Gln Leu Trp Leu His
 1 5 10 15

<210> 151

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 151

Pro	Asn	Asn	Lys	Arg	Asn	Gln	Leu	Trp	Leu	His	Leu	Asn	Thr	His
1			5					10						15

<210> 152

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 152

Arg	Asn	Gln	Leu	Trp	Leu	His	Leu	Asn	Thr	His	Thr	Asn	Val	Glu
1			5					10						15

<210> 153

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 153

Trp	Leu	His	Leu	Asn	Thr	His	Thr	Asn	Val	Glu	His	Thr	Gly	Leu
1			5					10						15

<210> 154

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 154

Asn	Thr	His	Thr	Asn	Val	Glu	His	Thr	Gly	Leu	Gly	Tyr	Ala	Leu
1			5					10						15

<210> 155

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 155

Asn Val Glu His Thr Gly Leu Gly Tyr Ala Leu Gln Asn Ala Thr
1 5 10 15

<210> 156

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 156

Thr Gly Leu Gly Tyr Ala Leu Gln Asn Ala Thr Thr Ala Gln Asn
1 5 10 15

<210> 157

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 157

Tyr Ala Leu Gln Asn Ala Thr Thr Ala Gln Asn Tyr Val Val Arg
1 5 10 15

<210> 158

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 158

Asn Ala Thr Thr Ala Gln Asn Tyr Val Val Arg Leu Thr Ile Tyr
1 5 10 15

<210> 159

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 159

Ala Gln Asn Tyr Val Val Arg Leu Thr Ile Tyr Val Gln Phe Arg
1 5 10 15

<210> 160

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 160

Val Val Arg Leu Thr Ile Tyr Val Gln Phe Arg Glu Phe Ile Leu
1 5 10 15

<210> 161

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 161

Thr Ile Tyr Val Gln Phe Arg Glu Phe Ile Leu Lys Asp Pro Leu
1 5 10 15

<210> 162

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 162

Tyr Val Gln Phe Arg Glu Phe Ile Leu Lys Asp Pro Leu Asn Glu
1 5 10 15

<210> 163

<211> 1759

<212> DNA

<213> Type A PWD circovirus

JESTIN4.txt

<400> 163
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gaaaaacaaa atacgggagc ttccaatctc cctttttgat tattttgttt gcggagagga 180
aggtttgga gagggtagaa ctctcacct ccagggggtt gcgaattttg ctaagaagca 240
gacttttaac aaggtgaagt ggtatttttg tgcccgctgc cacatcgaga aagcgaaagg 300
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<210> 164

<211> 1759

<212> DNA

<213> Type A PWD circovirus

<400> 164

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gaaaaacaaa atacgggagc ttccaatctc cctttttgat tattttgttt gcggagagga      180
aggtttgtaa gagggtagaa ctcctcacct ccaggggttt gctaattttg ctaagaagca      240
gacttttaac aaggtgaagt ggtatttttg tgcccgtgc caccatcgaga aagcgaaagg      300
aaccgaccag cagaataaag aatactgcag taaagaaggc cacatactta tcgagtgtgg      360
agctccgcgg aaccagggga agcgcagcga cctgtctact gctgtgagta cccttttgga      420
gacgggggtct ttggtgactg tagccgagca gttccctgta acgtatgtga gaaatttccg      480
cgggctggct gaacttttga aagtgagcgg gaagatgcag aagcgtgatt ggaagacagc      540
tgtacacgtc atagtgggcc cgcccgggtg tgggaagagc cagtgggccc gtaattttgc      600
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agaagaagtt gttgttttgg atgattttta tggctgggta ccttgggatg atctactgag      720
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cccagctgta gaagctctct atcggaggat tactactttg caattttgga agactgctgg      900
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tggagggggg tacaaagttg gcatccaaga taacaacagt ggaccaaca cctctttcat     1380
tagaggtgat ggggtctctg gggtaaaatt catatttagc ctttctaata cggtagtatt     1440
ggaaaggtag gggtaggggg ttggtgccgc ctgagggggg gaggaactgg ccgatgttga     1500
atctgaggtg gttaacatgc caagatggct gcgagtatcc tccttttatg gtgattacaa     1560

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JESTIN4.txt

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 ggcgggtcct tcttctgcgg taacgcctcc ttggccacgt catcctataa aagtgaaaga 1740
 agtgcgctgc tgtagtatt 1759

<210> 165

<211> 312

<212> PRT

<213> Type A PWD circovirus

<400> 165

Met Pro Ser Lys Lys Ser Gly Pro Gln Pro His Lys Arg Trp Val Phe
 1 5 10 15
 Thr Leu Asn Asn Pro Ser Gly Gly Gly Lys Asn Lys Ile Arg Gly Leu
 20 25 30
 Pro Ile Ser Leu Phe Asp Tyr Phe Val Cys Gly Gly Gly Gly Leu Gly
 35 40 45
 Gly Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe Ala Lys Lys
 50 55 60
 Gln Thr Phe Asn Lys Val Lys Trp Tyr Phe Gly Ala Arg Cys His Ile
 65 70 75 80
 Gly Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Gly Tyr Cys Ser Lys
 85 90 95
 Gly Gly His Ile Leu Ile Gly Cys Gly Ala Pro Arg Asn Gln Gly Lys
 100 105 110
 Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Gly Thr Gly Ser
 115 120 125
 Leu Val Thr Val Ala Gly Gln Phe Pro Val Thr Tyr Val Arg Asn Phe
 130 135 140
 Arg Gly Leu Ala Gly Leu Leu Lys Val Ser Gly Lys Met Gln Gln Arg
 145 150 155 160
 Asp Trp Lys Thr Ala Val His Val Ile Val Gly Pro Pro Gly Cys Gly
 165 170 175
 Lys Ser Gln Trp Ala Arg Asn Phe Ala Gly Pro Arg Asp Thr Tyr Trp
 180 185 190
 Lys Pro Ser Arg Asn Lys Trp Trp Asp Gly Tyr His Gly Gly Gly Val
 195 200 205
 Val Val Leu Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp Asp Leu Leu
 210 215 220

JESTIN4.txt

Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Gly Thr Lys Gly Gly Thr
 225 230 235 240
 Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn Gln Ala Pro
 245 250 255
 Gln Gly Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Gly Ala Leu Tyr
 260 265 270
 Arg Arg Ile Thr Thr Leu Gln Phe Trp Lys Thr Ala Gly Gly Gln Ser
 275 280 285
 Thr Gly Val Pro Gly Gly Arg Phe Gly Ala Val Asp Pro Pro Cys Ala
 290 295 300
 Leu Phe Pro Tyr Lys Ile Asn Tyr
 305 310

<210> 166

<211> 312

<212> PRT

<213> Type A PWD circovirus

<400> 166

Met Pro Ser Lys Lys Ser Gly Pro Gln Pro His Lys Arg Trp Val Phe
 1 5 10 15
 Thr Leu Asn Asn Pro Ser Gly Gly Gly Lys Asn Lys Ile Arg Gly Leu
 20 25 30
 Pro Ile Ser Leu Phe Asp Tyr Phe Val Cys Gly Gly Gly Gly Leu Gly
 35 40 45
 Gly Gly Arg Thr Ala His Leu Gln Gly Phe Ala Asn Phe Ala Lys Lys
 50 55 60
 Gln Thr Phe Asn Lys Val Lys Trp Tyr Phe Gly Ala Arg Cys His Ile
 65 70 75 80
 Gly Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Gly Tyr Cys Ser Lys
 85 90 95
 Gly Gly His Ile Leu Ile Gly Cys Gly Ala Pro Arg Asn Gln Gly Lys
 100 105 110
 Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Gly Thr Gly Ser
 115 120 125
 Leu Val Thr Val Ala Gly Gln Phe Pro Val Thr Tyr Val Arg Asn Phe
 130 135 140
 Arg Gly Leu Ala Gly Leu Leu Lys Val Ser Gly Lys Met Gln Gln Arg
 145 150 155 160
 Asp Trp Lys Thr Ala Val His Val Ile Val Gly Pro Pro Gly Cys Gly
 165 170 175

JESTIN4.txt

Lys Ser Gln Trp Ala Arg Asn Phe Ala Gly Pro Ser Asp Thr Tyr Trp
 180 185 190
 Lys Pro Ser Arg Asn Lys Trp Trp Asp Gly Tyr His Gly Gly Gly Val
 195 200 205
 Val Val Leu Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp Asp Leu Leu
 210 215 220
 Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Gly Thr Lys Gly Gly Thr
 225 230 235 240
 Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn Gln Ala Pro
 245 250 255
 Gln Gly Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Gly Ala Leu Tyr
 260 265 270
 Arg Arg Ile Thr Thr Leu Gln Phe Trp Lys Thr Ala Gly Gly Gln Ser
 275 280 285
 Thr Gly Val Pro Gly Gly Arg Phe Gly Ala Val Asp Pro Pro Cys Ala
 290 295 300
 Leu Phe Pro Tyr Lys Ile Asn Tyr
 305 310

<210> 167

<211> 233

<212> PRT

<213> Type A PWD circovirus

<400> 167

Met Thr Trp Pro Arg Arg Arg Tyr Arg Arg Arg Thr Arg Pro Arg
 1 5 10 15
 Ser His Leu Gly Asn Ile Leu Arg Arg Arg Pro Tyr Leu Ala His Pro
 20 25 30
 Ala Phe Arg Asn Arg Tyr Arg Trp Arg Arg Lys Thr Gly Ile Phe Asn
 35 40 45
 Ser Arg Leu Ser Thr Glu Phe Val Leu Thr Ile Arg Gly Gly His Ser
 50 55 60
 Gln Pro Ser Trp Asn Val Asn Tyr Leu Lys Phe Asn Ile Gly Gln Phe
 65 70 75 80
 Leu Pro Pro Ser Gly Gly Thr Asn Pro Leu Pro Leu Pro Phe Gln Tyr
 85 90 95
 Tyr Arg Ile Arg Lys Ala Lys Tyr Glu Phe Tyr Pro Arg Asp Pro Ile
 100 105 110
 Thr Ser Asn Gln Arg Gly Val Gly Ser Thr Val Val Ile Leu Asp Ala
 115 120 125

JESTIN4.txt

Asn Phe Val Thr Pro Ser Thr Asn Leu Ala Tyr Asp Pro Tyr Ile Asn
 130 135 140
 Tyr Ser Ser Arg His Thr Ile Arg Gln Pro Phe Thr Tyr His Ser Arg
 145 150 155 160
 Tyr Phe Thr Pro Lys Pro Glu Leu Asp Gln Thr Ile Asp Trp Phe His
 165 170 175
 Pro Asn Asn Lys Arg Asn Gln Leu Trp Leu His Leu Asn Thr His Thr
 180 185 190
 Asn Val Glu His Thr Gly Leu Gly Tyr Ala Leu Gln Asn Ala Ala Thr
 195 200 205
 Ala Gln Asn Tyr Val Val Arg Leu Thr Ile Tyr Val Gln Phe Arg Glu
 210 215 220
 Phe Ile Leu Lys Asp Pro Leu Asn Lys
 225 230

<210> 168

<211> 233

<212> PRT

<213> Type A PWD circovirus

<400> 168

Met Thr Trp Pro Arg Arg Arg Tyr Arg Arg Arg Arg Thr Arg Pro Arg
 1 5 10 15
 Ser His Leu Gly Asn Ile Leu Arg Arg Arg Pro Tyr Leu Val His Pro
 20 25 30
 Ala Phe Arg Asn Arg Tyr Arg Trp Arg Arg Lys Thr Gly Ile Phe Asn
 35 40 45
 Cys Arg Leu Ser Lys Glu Phe Val Ile Thr Ile Arg Gly Gly His Ser
 50 55 60
 Gln Pro Ser Trp Ile Val Asn Ile Leu Arg Phe Asn Ile Gly Gln Phe
 65 70 75 80
 Leu Pro Pro Ser Gly Gly Thr Asn Pro Leu Pro Leu Pro Phe Gln Tyr
 85 90 95
 Tyr Arg Ile Arg Lys Ala Lys Tyr Glu Phe Tyr Pro Arg Asp Pro Ile
 100 105 110
 Thr Ser Asn Glu Arg Gly Val Gly Ser Thr Val Val Ile Leu Asp Ala
 115 120 125
 Asn Phe Val Thr Pro Ser Thr Asn Leu Ala Tyr Asp Pro Tyr Ile Asn
 130 135 140
 Tyr Ser Ser Arg His Thr Ile Arg Gln Pro Phe Thr Tyr His Ser Arg
 145 150 155 160

JESTIN4.txt

Tyr Phe Thr Pro Lys Pro Glu Leu Asp Gln Thr Ile Glu Trp Phe His
 165 170 175
 Pro Asn Asn Lys Arg Asn Gln Leu Trp Leu His Leu Asn Thr His Thr
 180 185 190
 Asn Val Glu His Thr Gly Leu Gly Tyr Ala Leu Gln Asn Ala Ala Thr
 195 200 205
 Ala Gln Asn Tyr Val Val Arg Leu Thr Ile Tyr Val Gln Phe Arg Glu
 210 215 220
 Phe Ile Leu Lys Asp Pro Leu Asn Lys
 225 230

<210> 169

<211> 206

<212> PRT

<213> Type A PWD circovirus

<400> 169

Met Ile Ser Ile Pro Pro Leu Ile Ser Thr Arg Leu Pro Val Gly Val
 1 5 10 15
 Pro Arg Leu Ser Lys Ile Thr Gly Pro Leu Ala Leu Pro Thr Thr Gly
 20 25 30
 Arg Ala His Tyr Asp Val Tyr Ser Cys Leu Pro Ile Thr Leu Leu His
 35 40 45
 Leu Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser His
 50 55 60
 Ile Arg Tyr Arg Glu Leu Leu Gly Tyr Ser His Gln Arg Pro Arg Leu
 65 70 75 80
 Gln Lys Gly Thr His Ser Ser Arg Gln Val Ala Ala Leu Pro Leu Val
 85 90 95
 Pro Arg Ser Ser Thr Leu Asp Lys Tyr Val Ala Phe Phe Thr Ala Val
 100 105 110
 Phe Phe Ile Leu Leu Val Gly Ser Phe Arg Phe Leu Asp Val Ala Ala
 115 120 125
 Gly Thr Lys Ile Pro Leu His Leu Val Lys Ser Leu Leu Leu Ser Lys
 130 135 140
 Ile Arg Lys Pro Leu Glu Val Arg Ser Ser Thr Leu Phe Gln Thr Phe
 145 150 155 160
 Leu Ser Ala Asn Lys Ile Ile Lys Lys Gly Asp Trp Lys Leu Pro Tyr
 165 170 175
 Phe Val Phe Leu Leu Leu Gly Arg Ile Ile Lys Gly Glu His Pro Pro
 180 185 190

JESTIN4.txt

Leu Met Gly Leu Arg Ala Ala Phe Leu Ala Trp His Phe His
 195 200 205

<210> 170

<211> 206

<212> PRT

<213> Type A PWD circovirus

<400> 170

Met Ile Ser Ile Pro Pro Leu Ile Ser Thr Arg Leu Pro Val Gly Val
 1 5 10 15
 Ala Arg Leu Ser Lys Ile Thr Gly Pro Leu Ala Leu Pro Thr Thr Gly
 20 25 30
 Arg Ala His Tyr Asp Val Tyr Ser Cys Leu Pro Ile Thr Leu Leu His
 35 40 45
 Leu Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser His
 50 55 60
 Ile Arg Tyr Arg Glu Leu Leu Gly Tyr Ser His Gln Arg Pro Arg Leu
 65 70 75 80
 Gln Lys Gly Thr His Ser Ser Arg Gln Val Ala Ala Leu Pro Leu Val
 85 90 95
 Pro Arg Ser Ser Thr Leu Asp Lys Tyr Val Ala Phe Phe Thr Ala Val
 100 105 110
 Phe Phe Ile Leu Leu Val Gly Ser Phe Arg Phe Leu Asp Val Ala Ala
 115 120 125
 Gly Thr Lys Ile Pro Leu His Leu Val Lys Ser Leu Leu Leu Ser Lys
 130 135 140
 Ile Ser Lys Pro Leu Glu Val Ser Ser Ser Thr Leu Phe Gln Thr Phe
 145 150 155 160
 Leu Ser Ala Asn Lys Ile Ile Lys Lys Gly Asp Trp Lys Leu Pro Tyr
 165 170 175
 Phe Val Phe Leu Leu Leu Gly Arg Ile Ile Lys Gly Glu His Pro Pro
 180 185 190
 Leu Met Gly Leu Arg Ala Ala Phe Leu Ala Trp His Phe His
 195 200 205